

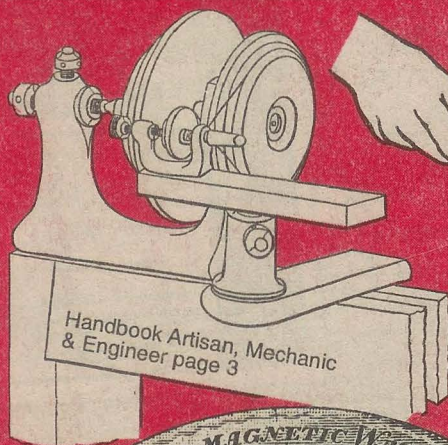
Lindsay's

METAL WORKING BOOKS

Unusual metalworking books of exceptionally high quality revealing skills and processes almost forgotten.

Christmas Orders

see page 4



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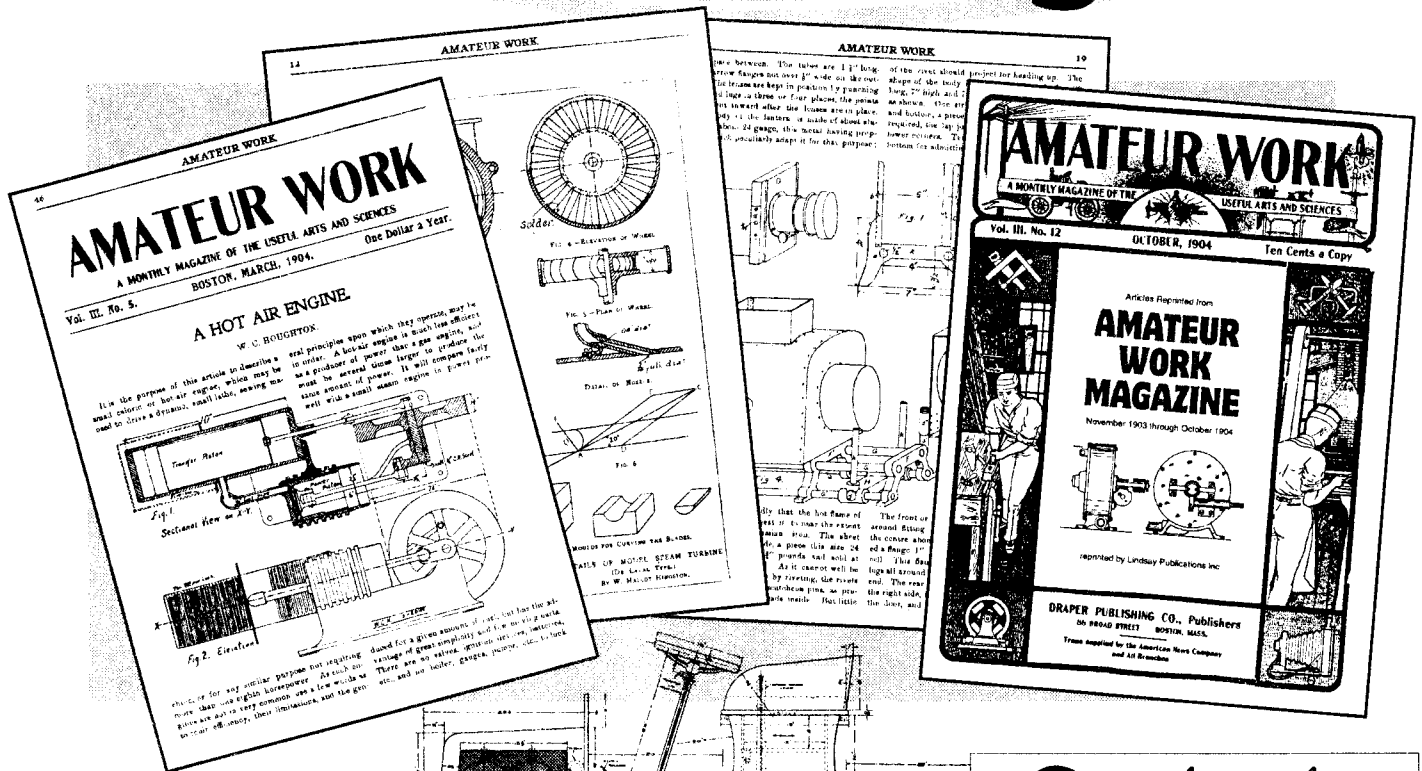
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Amateur Work Magazine



AMATEUR WORK MAGAZINE reprinted by Lindsay Publications

Apparently at the turn of the (last) century Amateur Work Magazine wanted to be the equivalent of England's Model Engineer or today's Home Shop Machinist magazine. Every month the subscriber received a magazine describing interesting projects and how-to. I don't think this compares to Model Engineer in quality neither then nor now. But nevertheless, there WERE some very interesting articles offered.

Here I've extracted the best articles from 1904 issues and have reprinted them in one low-cost volume. There's something here for everyone, from acetylene generators and crystal detectors to hand milling machines and steam turbines.

What knocked my socks off were page after page of plans for a light gasoline car with an 80" wheel base driven by a two-cylinder engine having a 4" bore and 2" stroke and sliding gear transmission. All the drawings were dimensioned. Certainly, this isn't step-by-step how-to, but these are fascinating plans of an auto back before Henry Ford started up. Imagine building a version of this and driving into a model engineering exhibition. You would be the star attraction.

And there are other interesting projects

REPRINTS OF THE BEST ARTICLES from November 1903 through October 1904

from building a dynamo, gas engine spark coils, making electrotypes, soldering, model steamboat and all kind of goodies. All of this is well-illustrated. I doubt that you would build any project from this book as presented. You would want to modify it, and you will need some imagination. After all, this isn't Gingery-style how-to.

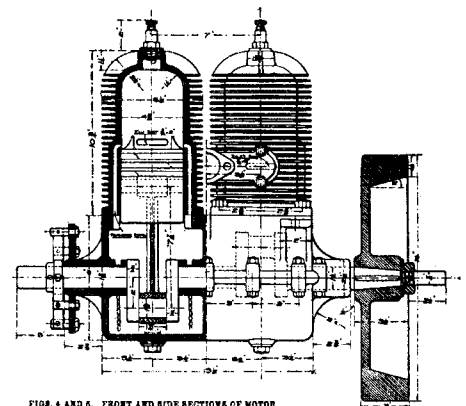
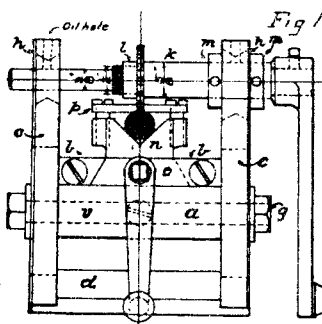
This is a fun book to just thumb through and dream. You should have a copy. You'll enjoy it. Not everyday am I able to offer a book like

this. Great ideas. Reasonable price. (Cheap by today's standards) Get one!
8 1/2 x 11 softcover 96 pages
No. 21761

\$9.95

Contents

Gas Engine Spark Coils • Bench Micrometer • Model Steam Turbine • Electrical Flash Lamp • Magic Lantern • Simple Balance • Set of Weights • Acetylene Generator • Jolly Balance • Cylinder Printing Press • Thermit • Model Steamboat • Soldering • Oil Immersed Condenser • Wireless Telegraph Receiver • Sensitive Relay • Spectroscope • Hot Air Engine • How to Make Electrotypes • Model Turbine Engine • Attachments for Lathe • Bench Grinder • Light Gasoline Car • Wireless Telegraph Apparatus • 80 Watt Dynamo • Casting in Soft Metals or Alloys • Sensitive Galvanometer • Storage Battery • Hand Milling Machine • Telephone Circuits & Wiring • Rowing Skiff • Bench Trimmer & Saw Block • Tool Sharpening Device



THE PROSPECTOR'S FIELD-BOOK AND GUIDE

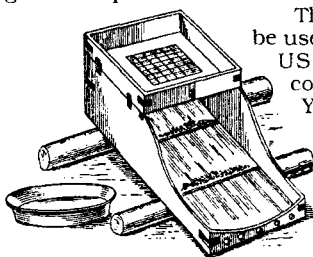
by Prof. H. S. Osborn
reprinted by
Lindsay Publications

You don't need satellite photographs and million-dollar equipment to find valuable ore deposits. In this book an old-timer will teach you the state of the art as it was in 1901.



Prospector's Field Book

You'll learn the basics of mineralogy, blowpipe analysis, crystallography, surveying, ore analysis, and special mineralogy. Then you'll get detailed information on tellurium, platinum, silver, copper, lead, tin, mercury, bismuth, nickel, cobalt, cadmium, zinc, iron, aluminum, antimony and manganese. A chapter touches briefly on alum, arsenic, borax, clays, mica, meerschaum, rock salt and more. Another chapter goes into petroleum, ozocerite, asphalt and even peat. Chapter 15 will even teach you about gems and precious stones.



This book can be used all over the US from East coast to West. You can explore for gold, silver and platinum and hope to get rich. More realistically, it

might be fun to locate a local vein of iron ore or copper ore and try smelting metal the way the ancients did it. Imagine the fun you'd have bragging that you not only built a lathe, but that you actually extracted the metal used in its construction from ores you dug yourself!

If nothing else, you'll find this to be an easy-to-read text on minerals and basic geology. And it's good. The first edition came out in 1892, and this is a reprint of the 5th edition in 1901. So you know this was a popular book in its day. Get a copy. 5 1/2 x 8 1/2 paperback 308 pages No. 4570

\$9.95

Jumpstart The Brain

Dear Mr. Lindsay,

I am getting another order together, but the problem is that you offer so many great titles, it is hard to choose which to order for a "fixed" amount of hobby money! Maybe if some of your books can offer a jumpstart to my brain, I can come up with an idea that can make me enough money to order all of them!

You are doing more than running an honest, reliable, and I am sure, profitable business. You are doing the "rather build it myself" hobbyist like myself a great service. I wish to thank you and your great staff.

Brad Alheim, N1TLK
Chicopee, Mass.

Artisan, Mechanic & Engineer

1853 Handbook on Abrasion! Sharpen tools,
engrave glass, cut gems, grind lenses, much more!

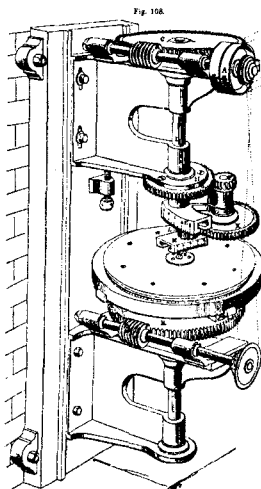
HANDBOOK FOR THE ARTISAN MECHANIC AND ENGINEER

by Oliver Byrne

reprinted by Lindsay Publications

"...comprising the grinding and sharpening of cutting tools, abrasive processes, lapidary work, gem and glass engraving, varnishing and lathering, apparatus, materials, and processes for grinding and polishing, etc. etc..."

This is an oldie.



Although printed in 1870, the original copyright is from 1853. And this is great how-to, and very well illustrated, at least for that era, with 185 wood engravings.

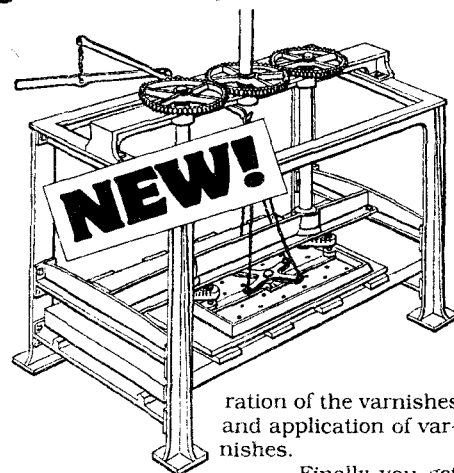
The section on grinding and sharpening cutting tools includes chapters entitled: grinding cutting tools on the ordinary grindstone, sharpening cutting tools on the oilstone, setting razors, sharpening cutting tools with artificial grinders, and grindstones.

The figuration of materials by abrasion includes: the production of plane surfaces by abrasion, the production of cylindrical surfaces by abrasion, the production of conical surfaces by abrasion, the production of spherical surfaces by abrasion, and glass cutting.

Lapidary work includes: slitting, cutting, and polishing flat and rounded works; cutting facets; and lapidary apparatus for amateurs.

The gem and glass engraving section provides: seal and gem engraving, cameo cutting, and glass engraving.

Varnishing and lathering covers prepa-



ration of the varnishes and application of varnishes.

Finally you get a general discussion on abrasive techniques and "dictionary of the apparatus, materials and processes for grinding and polishing commonly in employed in useful arts."

There are some very interesting and unusual devices such as ganged saws for slitting a slab of limestone, and another for polishing limestone or marble to a very flat surface. Some of the simple jigs could be used today to grind cutting tools for lathes, shapers and milling machines. Want to grind a lense to make a telescope so you can spy on the good looking neighbor lady next door? The secrets are here. Better yet, cut and polish that chunk of quartz you found down at the quarry into a beautiful ring. Tell her it's a huge diamond!

I'm sure there have been many improvements since this book was first published, but just think of the beautiful jewellery, polished works of art, and finery owned by wealthy people that burned in the Great Chicago Fire of 1871. That merchandise could very well have been produced by this equipment.

This is early, effective technology. A really interesting book filled with unusual information. Get a copy. 5 1/2 x 8 1/2 softcover 463 pages No. 21850

\$18.95

HARDCOVER EDITION

Case-bound edition.

Only a few. While they last.
No. 21869

\$28.95

CHRISTMAS GIFTS

you can help ensure delivery

- Order Early! Get your order here before December 15th. We will be closed shortly before Christmas until a few days after. So don't wait until the last minute.
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- FAX your order in. We take phone orders, but they slow us way down, and speed is extremely important.
- UPS COD is available but is slower than other methods due to additional processing. And there's an additional charge of several dollars. Charge card orders are faster to process.

If you can help us in these ways, we'll do everything we can to get your order to you by Christmas.

Gift Certificates

are available in any amount under a million dollars. We can't handle amounts over a million because I can't remember how many zeroes to write down. (I can't help it if I was born senile...)

Lindsay

Completely Wrong

Dear Mr Lindsay:

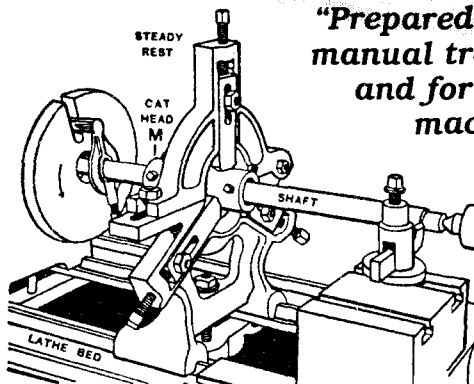
I don't know how you do it. I received your catalog one week after I sent out my request for it. I was amazed at the selection of books that you offer, all at very reasonable prices. The low shipping costs had me worried for a while. I assumed, since many places charge \$4.95 shipping and handling for a book that takes six to eight weeks to arrive, that books from you would take at least that long and arrive to me in poor condition. I was completely wrong. Less than a week after I sent out the order form for my first set of books from you, they were in my hands in perfect condition. I will never underestimate you or your company again. Keep up the good work.

Nick Pandisco
Hopkinton MA

(I keep yelling at my employees to "Let the damned phone ring! Get the orders packed and out the door!" We try to keep as many customers happy as possible.)

Advanced Machine Work!

"Prepared for students in technical, manual training, and trade schools, and for the apprentice and the machinist in the shop."



ADVANCED MACHINE WORK

by Robert H. Smith

reprinted by Lindsay Publications

Here's the best general machine shop book I've ever seen old or new. Smith brought out this book in 1915, updating it in 1925. That makes it new enough to still be of great value, but old enough to contain a many techniques that are no longer taught.

You get easy-to-read text, step-by-step instructions, and great illustrations. Modern books are prettier, but they cannot possibly do a better job of teaching.

"Advanced" covers everything you can imagine from basic operation of a microme-

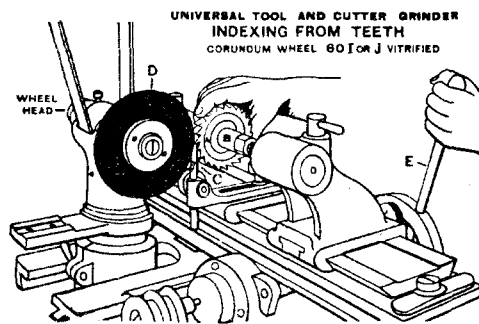


FIG. 19. — GRINDING PLAIN MILLING CUTTER.

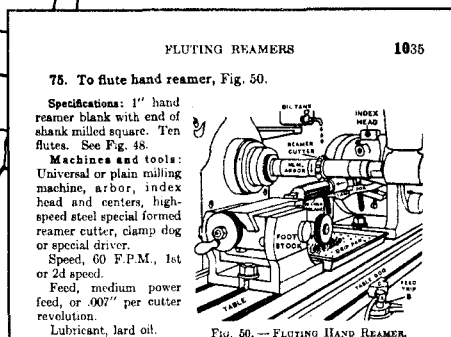
ter and vernier caliper, to the testing of machine tools for accuracy. You'll learn the different methods of turning tapers and their fitting, detailed instructions on cutting threads, making bolts and nuts, face plates and chucks, mounting work, turning flanges and pulleys, boring, threading, cutting square threads bolts and nuts, cutting multiple threads, knurling, and much more.

You'll learn about drilling jigs, eccentric turning, facing large cylinders, use of steadies and followers, external and internal grinding, and the grinding of piston rings, milling cutters, reamers, and more.

Chapter nine covers planers and their use. Learn to plane keyways, lathe beds, vises, and more.

In learning to use a milling machine you'll groove taps, flute reamers, mill T-slots in a circular table and more.

And there's so much more on



PLUTING REAMERS

1035

75. To flute hand reamer, Fig. 50.

Specifications: 1" hand reamer blank with end of shank milled square. Ten flutes. See Fig. 48.

Machines and tools: Universal or plain milling machine, arbor, index head and centers, high-speed steel special formed reamer cutter, clamp dog or special driver.

Speed, 60 F.P.M., 1st or 2d speed.

Feed, medium power feed, or .007" per cutter revolution.

Lubricant, lard oil.

Time: 50 min. with machine "set up".

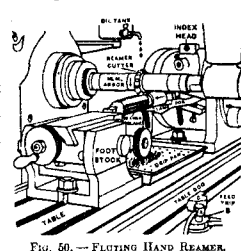


FIG. 50. — FLUTING HAND REAMER.

SCHEDULE OF OPERATIONS, MACHINES, TOOLS

- I. Clean and oil machine and see Fig. 48. Avoid back-index head.
- II. Preparatory adjustments. Insert clean arbor in clean of start machine. Driver feed and adjust. Stop the feed when the center has reached the Oil end of the blank. See p. 1014.
- III. Arrange plain indexing to teeth with a 30-hole circle.
- IV. Mount reamer blank or trial blank on centers. Fasten clamp dog or special driver on square end of reamer blank, oil dead center and mount reamer blank (or trial blank) on centers.



FIG. 51. — DIAGRAM OF REAMER SHOWING PRINCIPLE OF IRREGULAR SPACING.

everything from gear cutting to making mandrels, taps, twist drills, using indicators, sine bars and more. You'll learn how to make expensive tools that you now buy. You'll even learn how to check the accuracy of lathes, milling machines, drill presses, and lead screws, and even use of optical flats to measure to millionths of an inch!

Just about everything you can imagine in amazing detail. This baby delivers! A bargain! Worth twice the price. I recommend it highly. People rave about it! Order yourself a copy today! 6 x 9 hardcover 800 pages heavily illustrated

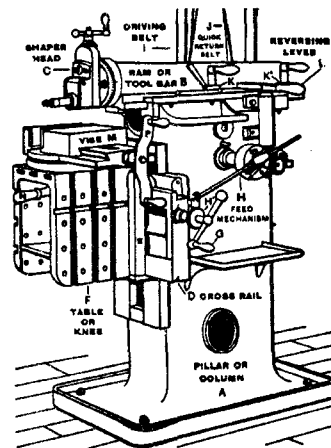
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\$29.95

A "Damned Fool" Book!

People who have seen this book claim "Anyone who considers himself a machinist and doesn't have a copy of this must be a damned fool!"

(I can identify with that...)



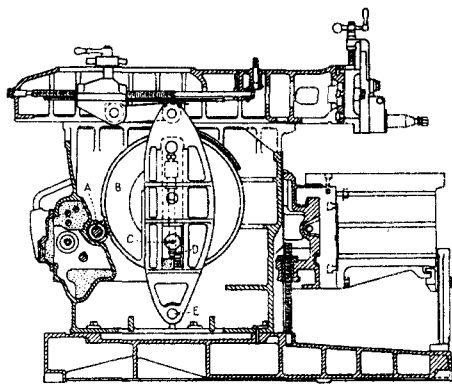


FIG. 58.—Section of shaper showing driving mechanism.

Drilling and Surfacing Practice

DRILLING AND SURFACING PRACTICE

by Colvin and Stanley

reprinted by Lindsay Publications

In July 1936, the dynamic duo spoke:

"This volume aims to show the development in drilling and surfacing practice and presents much information not hitherto available in compact form."

Chapters include: drills and drilling machines; drill points and troubles; drill shanks, speeds and feeds; general drilling information; deep-hole drilling; various drilling operation; types of drilling machines; design, construction, and the use of reamers; taps and screw threads; planers, shapers and slotters;

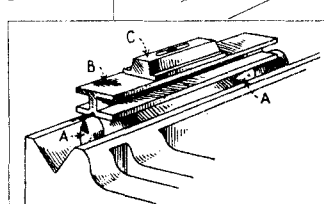
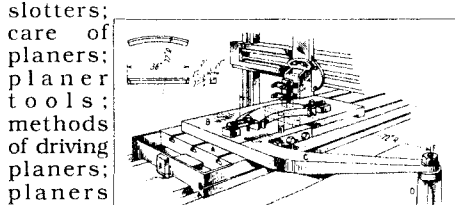


FIG. 3.—Using same equipment to check high or low spots on each side of bed.

and their work; shapers; shaper tools and work; the slotting machine; primary milling

operations; general milling operations; types of milling machines; planetary milling machines; universal indexing centers; milling-machine attachments; cutting helices on the milling machine; milling cutters; milling cutters and their uses; cutters for milling large plain surfaces; high-speed and other milling cutters; care of milling cutters; general information about broaching; commercial broaching; external or surface broaching.

As always you get tables, drawings, and photographs some of monster machines and others of smaller equipment you and I would use.

Great book. It's entertaining, and it's fast reading. It covers a lot, but the dynamic duo come through again! I think you'll like it. Get a copy. 5 1/2 x 8 1/2 softcover 431 pages. No. 21729 \$19.95

Elements of Machine Work

Companion Volume to Advanced Machine Work

ELEMENTS OF MACHINE WORK

by Robert H. Smith

Here it is, the companion book to *Advanced Machine Work* (AMW). And it's quite a nice book even though it covers simpler material than AMW. But first an explanation is in order.

In the preface of our 1919 AMW reprint, Smith mentions *Principles of Machine* as being the companion book. In 1910 that book was entitled "Elements". That same year, what was then "Prin-

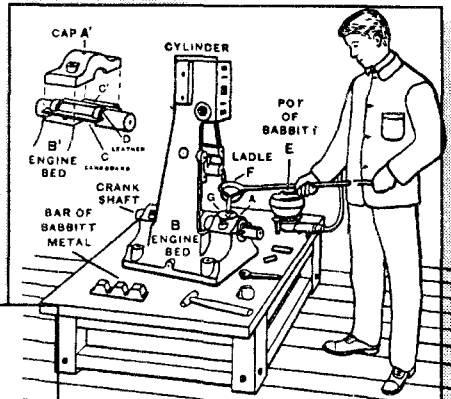


FIG. 191. BARBITTING ENGINE BEARINGS.

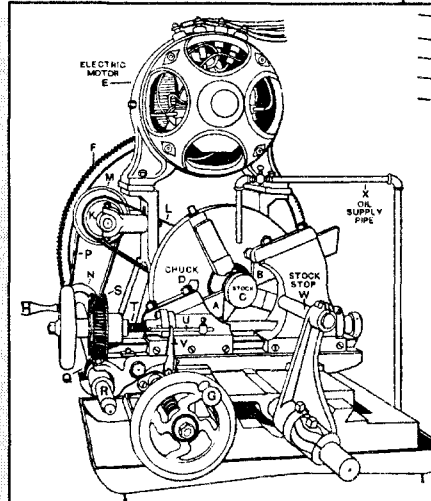
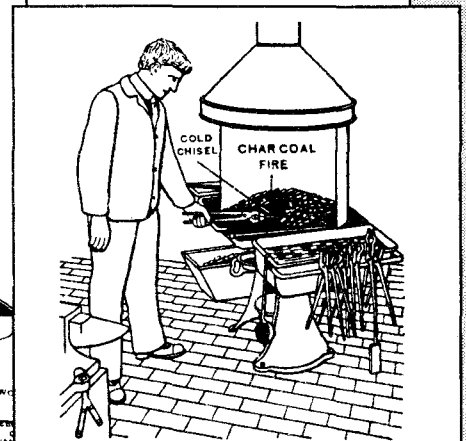


FIG. 148.—Electrically Driven Cutting-off Machine with Two



G. 124.—HEATING COLD CHISEL TO HARDEN.

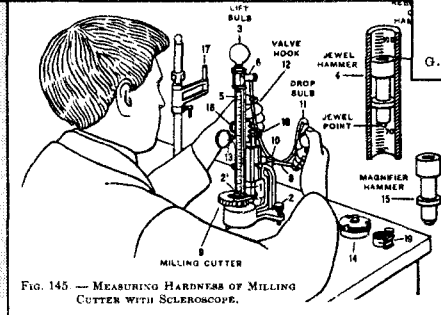


FIG. 145.—MEASURING HARDNESS OF MILLING CUTTER WITH SCLEROSCOPE.

Learn the Basics from Robert Smith!

pipe fittings, hand and machine methods of piping, straightening and bending, peening and riveting, hand drilling, soldering, brazing, babbiting, power transmission, aligning and leveling shafting and installing machines, and more.

If you have *Advanced Machine Work* (and if you don't, then why not?), you know how this book is laid out: lots of illustrations and step-by-step instructions. It is nowhere as large as *Advanced*, but it does an excellent

job on the basic material it presents. A

lot of this may be too basic for you, but I'm sure you'll learn something new nonetheless.

So order a copy so that you have both of Smith's classic books. Great material, but you already know that. Get one!

5 1/2 x 8 1/2 hardcover 192 pages No. 21770 \$18.95

ciples" was greatly expanded to become "Advanced". We could have reprinted 1910 "Principles" but everything in it was repeated in 1919 "Advanced", so I don't think you'd let me sell you something you already have. Confused? I sure am. But that's never stopped me. Just trust me when I tell you that this is the same book mentioned in "Advanced" as the companion tome.

Contents include: materials used for machine construction, Fig. 91. — INCORRECT POSITION OF HANDS FOR FILING. so that you have both of Smith's classic books. Great material, but you already know that. Get one! 5 1/2 x 8 1/2 hardcover 192 pages No. 21770 \$18.95

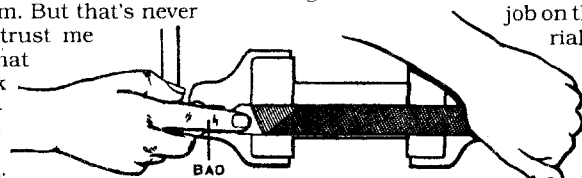


FIG. 91. — INCORRECT POSITION OF HANDS FOR FILING.

Meet Dave Gingery

One day Dave asked me if I was interested in offering his series of books on building machine tools from scrap for practically nothing. They're written for the guy who'd love to buy a lathe but is broke — in other words, most of us. He told me he had been building lathes for more than 20 years!

I said I was interested, but as usual, a little skeptical. When I saw his books, I was amazed. And I'm still amazed.

Dave has proven that you can start with simple handtools and can build precision machine tools. First, you set up a simple foundry and pour castings to build a lathe. You then use the lathe to build the shaper which will cut the dovetails, T-slots, and gears for the milling machine. Next, you build the drill press. Finally, you can go back and build the accessories you need for your lathe and other tools: dividing head, screw-cutting gears, chucks, and lots more. A handy sheet metal brake is thrown in for good measure.

Dave is magician! Give this guy a file, your aluminum storm door, and some charcoal, and he will turn it into precision ma-



chine tools! And he has shown thousands of others how to do it too!

As you build each machine, Dave teaches you new skills in foundry, mechanics, and machining. When you're done, you end up with a complete machine shop that you have built, you can use expertly, and you can repair should something go wrong. And best of all, you're a pretty darned good machinist.

I've never seen a series of books like this, and I don't think I ever will again. I may sound like a sideshow barker, but it's all true. Dave's books have become metal working classics. If you don't have a complete set yet, order those you're missing. Don't put it off.

507 MECHANICAL MOVEMENTS!

507 MECHANICAL MOVEMENTS

by Henry T. Brown

reprinted by Lindsay Publications

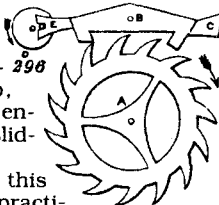
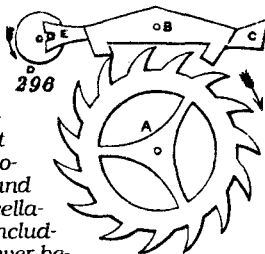
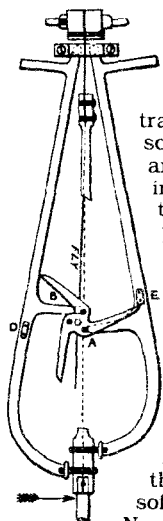
Originally copyrighted in 1868, this 1893 printing carries a complete title of "Five hundred and seven mechanical movements embracing all those which are most important in dynamics, hydraulics, hydrostatics, pneumatics, steam engines, mill and other gearing, presses, horology, and miscellaneous machinery; and including many movements never before published and several which have only recently come into use."

You'll find each left-hand page carries nine illustrations, and each right-hand page presents brief descriptions of their operation. Some of the movements are trivial, but others are quite unusual and interesting. In some cases you'll find that these movements were popular at one time, but are no longer used. Discover Fairbairns' bailing-scoop, Anderson's gyroscopic steam engine governor, or Clayton's sliding journal-box.

If you design machines, this can be very useful to you as practical how-to info. Design and build table-top demonstrations of these movements. Great project ideas! At the very least you'll find this a great book to browse through on a rainy afternoon. Very interesting. 6x7 softcover 128 pages

No. 4252

\$7.95



Build Dave Gingery's Metal Lathe!

BUILD A METAL LATHE

by Dave Gingery

Build a sturdy, precision metal cutting lathe for much less money than you'd pay for one of those "toy" lathes on the market. The only precision measuring equipment you need is a feeler gauge. You DON'T need any machine tools. In fact, Dave built the two prototypes for less than \$50 each just a few years ago!

Your lathe will have a 7" swing over the bed, about 5" over the saddle, with 12" between centers. You can bore the headstock spindle and tailstock to No. 1 Morse taper if you wish. You can scale it up but you'll need larger castings than the charcoal foundry can provide.

I had a chance to use one of the prototypes. After a pass across an 8" long steel bar, my micrometer showed a taper of less than .001". Not bad for a \$50 homemade lathe!

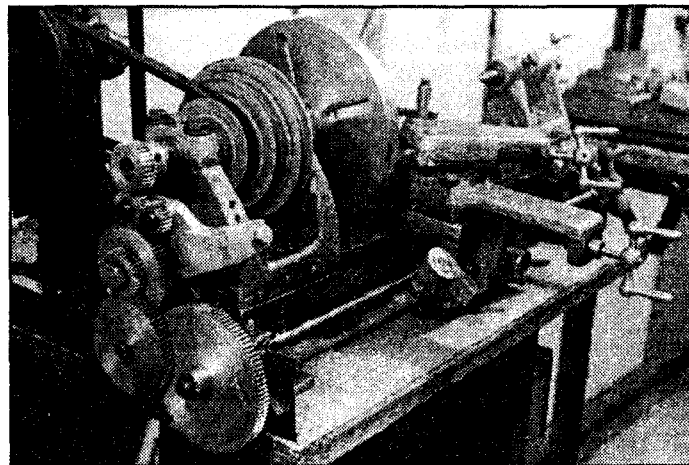
Castings from your charcoal

foundry are the secret of building a quality lathe. The only tools you need are an electric drill, files, and other handtools along with a very simple homemade disc grinder fully described in the book. A table saw is very handy for making patterns, but not absolutely essential.

You will use this simple lathe to build the metal shaper, milling machine, drill press, and the fancy accessories. You get no chuck or screwcutting gears. Dave will show you how to build them an much more in the book on deluxe accessories. They make life easy, but Dave will prove that they're not absolutely essential.

Can't afford to buy a lathe? Then build one. It doesn't take much money, just lots of hours. And just think of the bragging you could do! Order a copy today! 5 1/2 x 8 1/2 softcover 128 pages heavily illustrated.

No. 177 \$9.95



GREEN SAND CASTING TECHNIQUES

by Dave Gingery
and Robert Bailey

You can learn to ram up a green sand mold without this video just as I did by reading Dave's classic "Charcoal Foundry". But! When I watched this video, I found out why my castings were only passable, and why his were expertly done! He shows you how to get a first rate casting. I've poured a good many castings, and yet, I learned much from the master.

Dave Gingery!



Visit Dave In His Shop!

You get a review of the tools that can be purchased from the hardware store and made from scrap materials. You'll see Dave mold a two part flywheel pattern in bonded silica sand. You'll watch Dave ram up the sand, swab it, rap the pattern, pull it, and repair the damage.

With the pattern removed and the mold reassembled, you'll watch Dave fire up the gas-fired crucible furnace. Watch the flames jump from the vent hole! When the aluminum is molten, you can watch Dave pull the cherry red crucible and pour the mold. A little later, you'll see Dave shake out the mold to reveal a beautiful flywheel casting ready for machining.

As a bonus, you will see Dave's complete homebuilt machine shop fabricated from aluminum castings. See Dave's lathe in action. Watch his shaper cut flats on a shaft, and his milling machine surface an angle plate, and more. You'll see Dave's two cylinder Stirling engine running while the match plate patterns used to make it sit in the background. Even the Rider-Erickson hot air engine is shown running.

What you get here is a how-to on making sand molds. But you're also taken into Dave's shop and shown the marvels that he describes in his books. You'll come away from this video fired up! Snap up a copy of this VHS video. I guess it's about an hour in length (I was too busy winding and rewinding to get an exact measurement). NTSC only

No. 1320

\$29.95

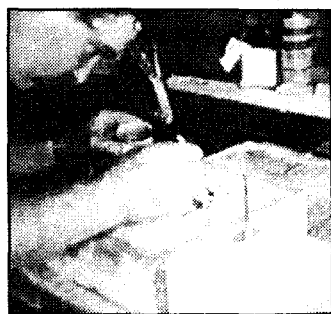
VIDEOS!

GREEN SAND CASTING TECHNIQUES VOLUME II

with John Dilsaver

Let John Dilsaver (who got his start with Gingery's "Charcoal Foundry") show you three advanced molding techniques for the Rider-Erickson hot air engine using Dave Gingery's patterns. You'll see the casting of the yoke which uses a follower because of its irregular parting line. It's an ingenious solution to a difficult molding problem.

Second, you'll see how the engine cylinder is cast with a hollow interior using a green sand core rather than the usual baked sand core. The secret to this fascinating and time saving technique is the use of a perforated pipe to support the green sand. John makes it look so easy.



John Dilsaver!



And finally, you'll see a number of small engine parts cast in brass using the match plate technique. As it is poured you'll easily see how much hotter brass is compared to molten aluminum. You can almost imagine how much hotter still molten iron would be. You'll hear these people who have poured brass and iron recommend that you start by casting aluminum before moving to the "hot" stuff.

Excellent content is the same high quality as the first. Good quality video. VHS cassette about 40 minutes in length

No. 1326

\$29.95

Melt Aluminum with Grocery Store Charcoal!

CHARCOAL FOUNDRY

by Dave Gingery

You can melt aluminum, pot metal, and even brass with a very simple home built furnace fueled with grocery store charcoal. In a very few minutes you can melt beer cans, your wife's pots and pans, the siding off your neighbor's house, the pistons out of your car, and anything else you can beg, borrow, or steal. It costs very little to build, and it works incredibly well.

All you need is an old metal 5-gallon pail, about \$6 worth of fireclay, some sand, a junk auto heater fan with a coffee can shroud (or a vacuum cleaner), and this book to build a high temperature furnace. One man built the furnace itself for about \$7. The blower, cords, a pipe for a crucible, and the rest cost a few dollars more, but I can't imagine that the whole set up being more than \$25 - probably much less if you're a good alley picker.

Some sandbox sand and fireclay will do very well for making sand castings. And all you need are some 1x4's and a few nails to build a cope and drag to make your molds. You wouldn't believe how easy it is to build a complete foundry.

After making a pattern (something that takes some skill), I rammed up a sand mold

and fired up the furnace. In went the crucible around which I placed about 75¢ worth of charcoal briquettes. Into the crucible went beverage cans, an old electric iron, and a couple of pistons. After skimming off the dross, I poured the 1400°F metal into the sand mold. About 20 minutes later, I had a face plate casting for a small lathe. Since then I've made lots more castings, and you can too.

This is the first book in Gingery's series showing you how to build a complete metal working shop from scrap for almost nothing. You must have the foundry setup in order to build the lathe, milling machine and other tools described in each of the other books. Castings make strong and precise machine tool components. You'd go broke buy-

ing the castings, if they were available, but you can make them for almost nothing in your own foundry.

Building machine tools takes hours and hours, but building the charcoal foundry is far simpler, and loads of fun. You can make castings for any purpose. Almost anyone can build a furnace, and you will become "hooked" on melting metal

once you try it.

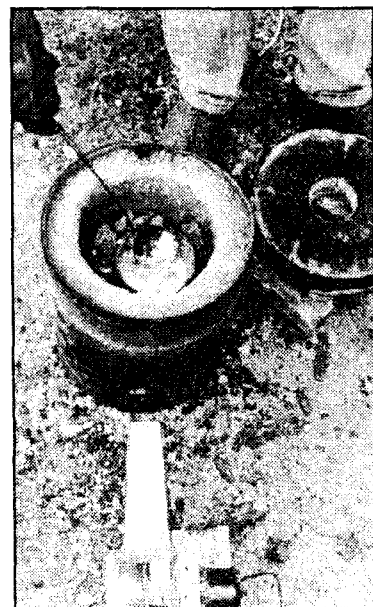
The "Charcoal Foundry" is a small book worth every penny of its price and then some. Every page is loaded with practical how-to useful advice. You get many, many drawings and excellent photographs that will show you step-by-step how to build a foundry.

Highest recommendation! This is the book to get started with. Thousands already have! Top rate! Get a copy. 5 1/2 x 8 1/2 softcover 80 pages

No. 163

\$7.95

Melt Metal!



Shaper Operations

Simple step-by-step
instructions on
"impossible jobs".

SHAPER OPERATIONS

by J. W. Barritt
reprinted by
Lindsay Publications

Good information on running a shaper is very hard to find. The last booklet of any quality was produced by South Bend Lathe, but it's no longer in print. But here's something I think is even better.

You get "job ticket" lessons published in 1937 for machine shop students. You get a list of the tools required, a break down of the major operations with detailed steps in each operation, followed by quiz questions to test your knowledge. Each job is accompanied by illustrations and "blue prints" to show you how the work is mounted and machined.

When you're done with each of these lessons, you should be very comfortable, if not expert, in running a shaper.

Get yourself a copy of this, Gingery's "How to Build a

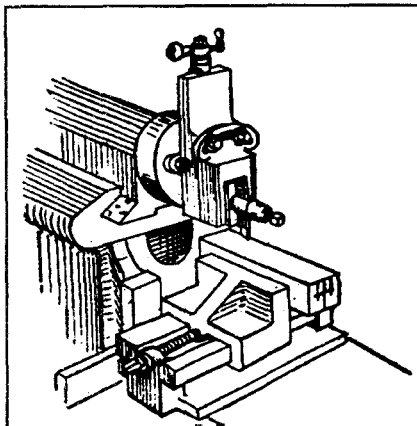


Fig. 2. Where the piece is not too long, it should be mounted in a vise in the position shown. The vise must be in good condition and a loose piece of some kind used between the movable jaw and the work.

Shaper", "Advanced Machine Work", "Lathe and Planer Tools", and other books in this catalog and get to work. Not only is there lots to be learned, there is a lot of fun to be had! Order a copy and get started!

8 1/2 x 11 softcover 55 pages
No. 21036 \$7.95

STEP-BY-STEP LESSONS:

- machine plain surface on cast iron
- machine a plain surface on cast steel
- machine three surfaces with one setting
- machine a rectangular cast-iron block all over
- machine a cast-iron angle plate
- lay out and machine a cast-iron cylinder
- lay out and machine a tool steel V block
- machine a brass bracket
- cut a keyway in shaft
- cut a keyway in gear blank
- cut a deep slot
- machine a concave surface
- machine a concave surface of large radius
- machine a driver of machine steel
- cut a tool steel cam
- machine a cast-iron foot
- machine a steel wedge
- machine a taper gib
- machine a cast steel block,
- cut a T slot
- cut a rack

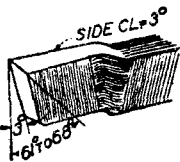


Fig. 5. Increasing the angle of the cutting edge on a side finishing tool will often stop chatter, provided the tool and the work are clamped tightly.

Comments from Dave Gingery!

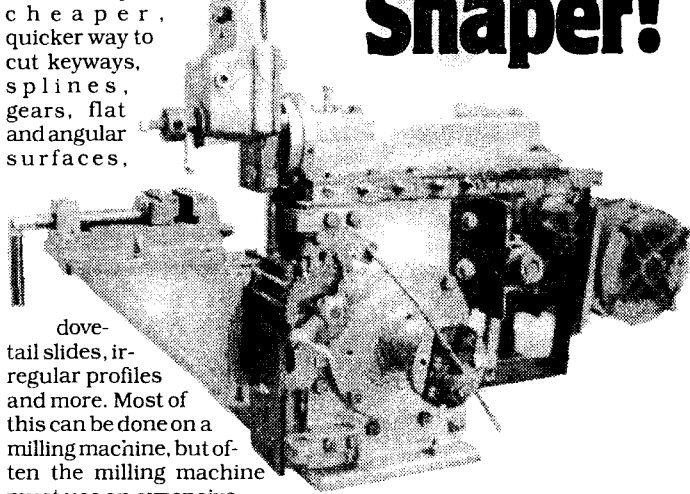
SHAPER OPERATIONS is unbelievable. This book gives simple step-by-step instructions on "impossible jobs". I've never seen any of the operations described better. And most of it I've never seen attempted at all. Most of the machinists who knew how to run a shaper are dead. And even if they were alive few of them would be able to deliver such clean, no-nonsense instruction. If you have a shaper, you should have this book. And if you read this book, you will want to buy or build a shaper.

BUILD A METAL SHAPER

by Dave Gingery

You may have heard that shapers are obsolete. Say that to someone who owns one! I dare you!

Truth is, there is hardly a cheaper, quicker way to cut keyways, splines, gears, flat and angular surfaces.



dove-tail slides, irregular profiles and more. Most of this can be done on a milling machine, but often the milling machine must use an expensive cutter. A shaper, for instance, can use a 50¢ piece of tool steel to cut gears. Forget the expensive cutters.

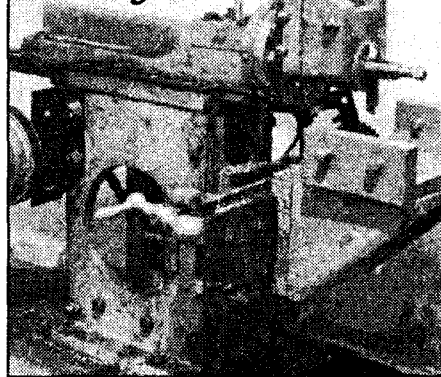
You can build an excellent metal shaper with a 6" maximum stroke and a mean capacity of 5" by 5". The tool head rotates through 180 degrees for angular cuts, and features a graduated collar with a simple lock. The down feed has a graduated collar, and the exact stroke length can be set. Your shaper will have variable speed, automatic variable cross feed and adjustable stroke length. It will be a machine worth bragging about.

You get all the pattern plans, all the secrets, and all the details. You'll need the charcoal foundry and Gingery's metal lathe or its equivalent. Like Gingery's other books, this one

Build Dave's
Incredible

Metal Shaper!

5" x 5" Capacity
6" Stroke
Versatile!
Powerful!



is jam-packed how-to. Great book! Order a copy of this classic!
5 1/2 x 8 1/2 softcover 144 pages, heavily illustrated.
No. 187 \$9.95

PACKAGE DEAL

"Build Your Own Metalworking Shop from Scrap"

ALL SEVEN GINGERY BOOKS:

Build a Charcoal Foundry, Lathe, Shaper, Drill Press, Milling Machine, Deluxe Accessories and Sheet Metal Brake! Save \$6.15

No. 929

\$59.50

Dave's Precision Milling Machine!

MILLING MACHINE

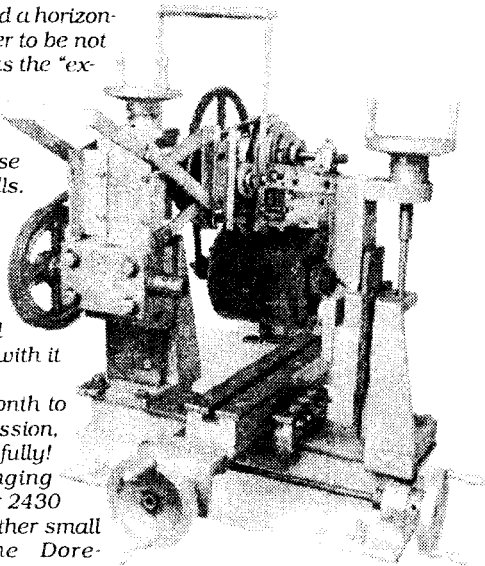
by Dave Gingery

Dave can tell the story best: "It's a horizontal miller, but it has the full range of vertical mill capability when used with the angle plate on the work table. Home shops will find a horizontal mill and a shaper to be not so nearly obsolete as the "experts" say, and even the smallest shop would soon outgrow one of those little toy vertical mills.

The work table 2 3/8" x 12" with a 3/8" T-slot, and it travels a full 12". The carriage travels 6 1/2" with the tail stand in use, and 8 1/2" with it cleared away.

It took over a month to design the transmission, and it works beautifully! Eight speeds ranging from 43 rpm to over 2430 rpm. I know of no other small miller except the Dore-Westbury that has such a range... The highest speed in the low range is 270 rpm, and it made a .035" cut in the end of the

screws didn't loosen, and the casting wasn't strained in the least amount. That's after several passes over a sandwich of

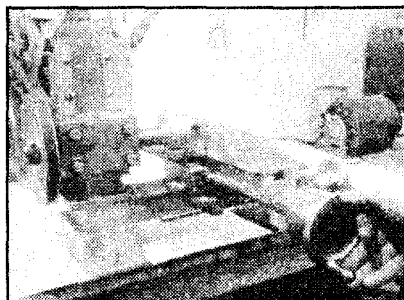


1/4" steel top and bottom, and an inch of aluminum between.

Anything is possible. It can make jigs or fixtures that are needed for any kind of work. It can make any type of style of cutter. You could even machine a blank or a Brown & Sharpe gear cutter, mill the lands, and grind the cutter right on the miller.

I'm really excited about this machine. It's much more than I thought possible when I began."

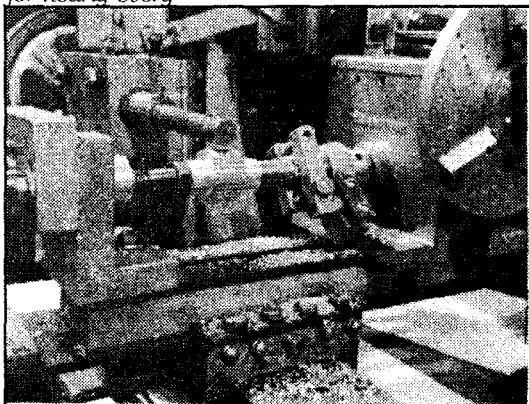
Build yourself a milling machine! Order a copy of this. It's worth twice the price. 5 1/2 x 8 1/2 softcover 160 pages No. 1128 \$9.95



compound with the face mill set at a 3" diameter at that speed with no squawk or chatter.

I made the cutter on the lathe, but the miller is designed to make its own cutters for nearly every

purpose. This cutter adjusts from 2 1/2" to 4 1/2". It's an aluminum casting, and it was cast with a steel core to leave the slot for the cutter bit. It shows no sign of failure after planing off the end of the compound. The set



DIVIDING HEAD & DELUXE ACCESSORIES

by Dave Gingery

Now that you've built the lathe, shaper, milling machine, and the drill press at almost zero cost, it's time to build the fancy accessories.

Chapter one covers "Tooling Up." You get a list of supply sources and helpful books, a review of basic tooling, and a series of simple lathes tools: compact clamp dog, heavy face plate, homemade hand reamers, a set screw chucks, expanding and threaded mandrels for facing gear blanks and for cutting teeth, plus a simple fixture for tapping truly perpendicular holes by hand.

The second chapter will show you how to build a simple two-jaw chuck that can be self-centering for repetitive work and a four jaw chuck with indepen-

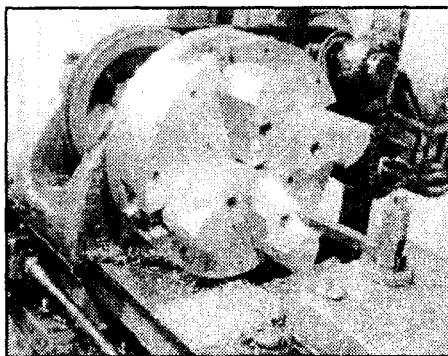
standard 40 tooth worm gear, providing all divisions through 50 and all even and multiples of 5 through 100. Many other divisions up to 1960 are possible, and it's easy to make a special plate for an unusual job. You'll be shown how it works, why it's so accurate, and how to build it and use it. The directions for drilling the fraction plates are especially valuable because they can be adapted to building a variety of other indexing fixtures.

Next, you'll cut professional quality change gears to add screwcutting capability to your homemade lathe. It's easy to machine the blanks to correct size and mill the tooth spaces. Dave will show you how to make gear cutters for about 50¢ each!

Finally, you'll be shown how to install these gears. A conventional tumbler plate provides left

BUILD DELUXE MACHINE SHOP ACCESSORIES!

Indexing Head • Face Plate • Steady Rest • Change Gears • Mandrels • Chucks • More!



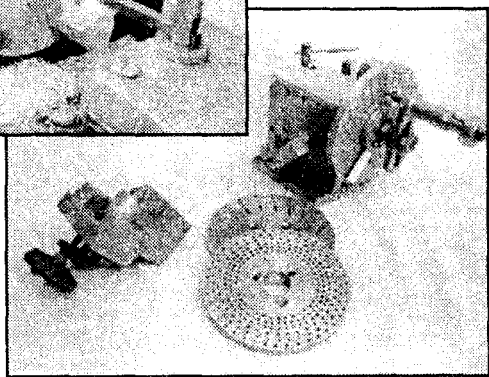
hand thread cutting, while the basic set of gears cuts all threads of standard inch sizes from 8 to 80 tpi. A fine feed range from .0025" per revolution to .005" is also provided. You even get a threading

indicator for the carriage so that you can engage the split nut at the proper moment. It really is easy to add change gears once you know how, and Dave will show you everything.

Then, you'll build the dividing head that serves as a rotary table, too. Few home shops have such an accessory, but you will. This beauty is built around a

Then, you'll build the dividing head that serves as a rotary table, too. Few home shops have such an accessory, but you will. This beauty is built around a

Incredible quality! Rare how-to! Order a copy today. 5 1/2 x 8 1/2 softcover 159 pages No. 1153 \$9.95

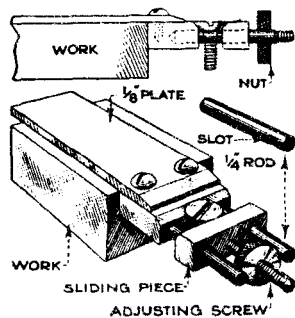


POPULAR MECHANICS DRILLING AND THREAD CUTTING HANDBOOK NO. 1 - 1925

reprinted by Lindsay Publications

"A compilation of 301 experiences in the drilling of metal and the cutting of threads, showing not only how to use drills, and tapes and dies, but how to make devices for special requirements in this work. With 298 illustrations."

If you've seen PM's Lathe Handbook No. 1 elsewhere in this catalog, then you know what this is. It's a companion text compiled



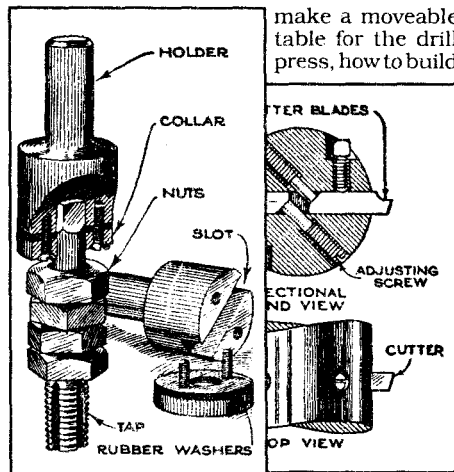
from short articles that had run in previous issues of Popular Science magazine.

Articles are broken into nine categories: 58 articles on special methods for handling drilling

and boring jobs, 75 articles on special tools and devices for drilling, 31 articles on how to make drill bits and boring bars, 23 articles on ideas on drill presses, 22 articles on special methods of reaming and broaching, 18 articles on methods and devices for thread cutting, 15 articles on taps and how to handle them, 16 articles on dies and how to handle them, and 43 articles on unusual drilling and thread cutting jobs.

Drilling & Thread Cutting Handbook!

The very first article describes boring large holes in glass. But you'll also learn how to cut oil grooves in pulleys, how to locate holes where a scriber can't be used, how to make a moveable table for the drill press, how to build



a rapid jig clamp, how to make a homemade flexible shaft boring machine, and much, much more.

I'm sure a lot of this stuff is practically useless. So what? Even if you never use anything in this book, the short stories and dynamite illustrations will keep you entertained for hours! Great stuff. Definitely worth having. Order a copy! 6x9 softcover 94 pp No. 21117 \$7.95

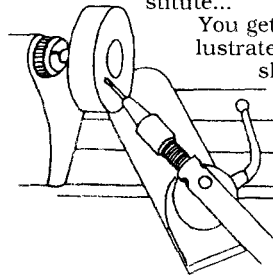
Tiny Drills Make Your Own!

HOW TO MAKE TINY DRILLS QUICKLY, EASILY & ACCURATELY

by Robert Porter

The author sent me a copy of his booklet and a letter explaining "...After making this type of drill by hand the hard way for over 40 years (I'm a little slow) to repair and restore antique clocks and watches, I've developed a simple method to make tiny (down to 0.004" diameter so far) drills quickly, easily and accurately.

I am a technical writer for the Horological Times, the official trade publication of the American Watchmakers/Clockmakers Institute..."



You get a brief, nicely illustrated booklet that will show you how to make tiny spade drills from high speed steel and tungsten carbide. Here's the straight dope from someone who knows what he's talking about. I'd say anyone who makes models must have a copy. And the rest of us had better get one just in case. Good stuff...

5 1/2 x 8 1/2 booklet 16 pages No. 1409 \$3.95

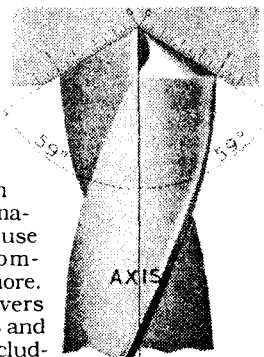
Handbook for Drillers

HANDBOOK FOR DRILLERS

by the Cleveland Twist Drill Co.
reprinted by Lindsay Publications

Learn about the parts of a twist drill, tips on grinding or sharpening, correct feeds and speeds, tips on drilling hard materials, brass, use of cutting compound, and more. Chapter 5 covers common errors and their results, including broken tangs, how to "drift out", using a lead hammer, warming high speed drills before using, and more. You'll find tables of feeds and speeds for drills from the tiniest numbered drill to 3" dia. drills with Morse taper shanks. Finally you'll discover several pages of advertising promoting Cleveland Twist drills, reamers, counterbores, end mills and more.

This eleventh edition from 1925 was intended to teach machinists the underlying theory of twist drills. You'll find it just as useful as they did! Order a copy of this inexpensive gem. You'll like it. 4 1/2 x 8 booklet 48 pages heavily illustrated No. 20056 \$3.95



THE DRILL PRESS

by Dave Gingerly

Build a professional quality drill press! It's a beauty! Dave describes it:

"I can't believe the capability of this machine. I put a 5/8" bit in the chuck, and it drilled through a 1/4" steel channel without a pilot hole. My wife said it looked like it was cutting cheese instead of steel.

Note the double reduction that gives a low speed of 260 rpm. That's why it can drill large holes in steel. I'm certain it can drill a 3/4" hole, and it may be capable of drilling up to a 1" in steel. I don't have a larger bit to test. All of the small drill presses that I've seen have a low speed around 700 rpm. That means they only have a capacity of 3/8" in steel, even if they do have 1/2" chuck.

Build Dave's "Killer" DRILL PRESS!

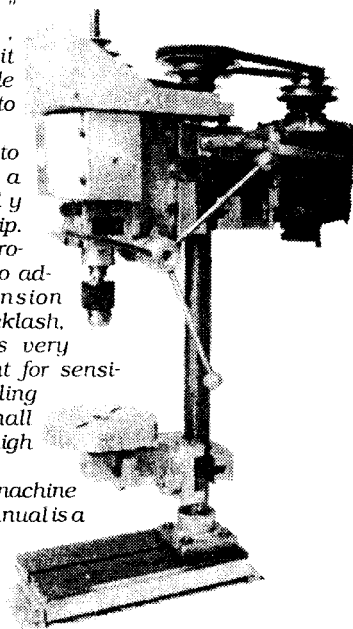
**Inexpensive! Powerful,
Precise! And YOU build it!**

The spindle is mounted in ball bearings, and so is the countershaft for the double reduction. The driven pulley is mounted on a hollow shaft, supported by its own 1" ball bearings to run concentric with the spindle. No belt tension is transferred to the spindle.

The quill feed is 2 1/2", and it can be made longer. The quill is advanced by a unique cable winch mechanism. This is only a

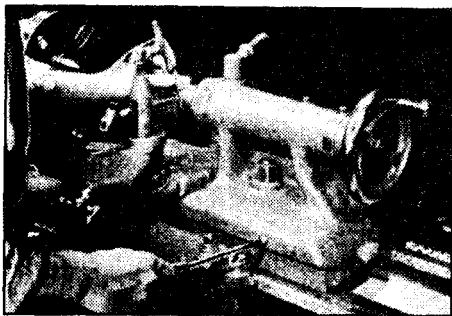
1/16" cable, though it had ample strength to feed the 5/8" bit to produce a closely curled chip. It has provisions to adjust tension and backlash, which is very important for sensitive drilling with small bits at high speed.

The machine in the manual is a



12". It can easily be scaled down about a third or smaller, and it can be scaled up to a hefty floor model with ease. None of the castings used the full one quart charcoal foundry capacity, and all of them were machined on the homemade lathe. Only the spline on the spindle was done on the miller."

Sure, you can buy a drill press. But you'll pay an arm and a leg for one that can match this performance. Building this one is worth the effort. Great book! Order a copy and get started. 5 1/2 x 8 1/2 softcover 128 pages illustrated No. 1133 \$9.95



Keep Your Lathe In Trim!

KEEP YOUR LATHE IN TRIM

by South Bend Lathe Works
reprinted by Lindsay Publications

The Technical Service Department of South Bend Lathe Works published this, the fourth (and I think the most useful) of four booklets on caring for a lathe in 1943. The copyrights have now expired, so we reprinted it. I have no idea if such a booklet is still being published.

You'll learn how to "make all necessary adjustments, check power supply, protect lathe from abuse, and keep lathe in best operating condition."

Although more than fifty years old, you'll find not all that much has changed. Some lathes use a flat belt drive from the electric motor. As a result you'll learn how to splice belts and adjust the drive. You'll see how to test a small spindle bearing for clearance and how to adjust the bearing. And you get tips on the saddle gibs, the graduated collars, the tailstock top set-over, and more.

This certainly won't tell you how to rebuild a lathe, but it WILL show you how to do the routine adjustments necessary to keep a lathe operating like new. Great little booklet. Worth having, as a collectible if nothing else! Get one. 5 1/2 x 8 1/2 softcover 28 pages No. 21389 \$3.95

Each new order is bigger than the last!

Dear Sir,

I have just received my third order of books from Lindsay Publications. I am afraid each new order is bigger than the last! At any rate, I have been completely satisfied with every order and I have spent countless hours enjoying the books. Thank you for making them available. I only wish I had found out about your company sooner.

Rick Harrison
Colorado

SHAPERS!

World War II Text Book!

SHAPERS

by Emanuele Stieri

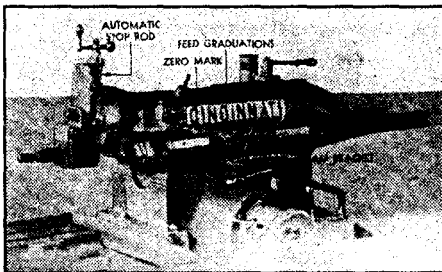
reprinted by Lindsay Publications

No doubt, the reason for publishing this book in 1943 was the need to train machinists for war production. That meant training people in the shortest amount of time to produce quality work. Stieri produced a book on running shapers that got right to the point.

Contents include classification and construction of shapers; shaper tools; holding the work; elementary shaper operations; the vertical shaper; elementary vertical shaper operations; description of a modern shaper; shaper maintenance; description of a modern vertical shaper; general description of the Pratt & Whitney shaper drive to the machine; and safety rules.

This little handbook (we've enlarged it from its original size) is quick and dirty. In chapter four, for instance, the sections are titled: testing the work seat; testing solid jaw for squareness; setting vise parallel with direction of stroke; selecting the proper tool; taking a horizontal cut; adjusting the work; adjustment of stroke; and on and on.

There seems to be a shortage of good how-to books on shapers. This not only tells you how to run a shaper, it does it quickly and clearly. You get a how-to book that is easy-to-read.



You may not have to make munitions for the boys on the front line, but you can learn to run a shaper as quickly and efficiently as those who did. If you have a shaper, get a copy of this. Or if you intend to build Gingery's shaper, this a must-have companion book. Excellent. Get a copy. 4 3/4 x 7 softcover 180 pages No. 21460 \$8.95

Making the Small Shop Profitable

Fun Reading! Practical!

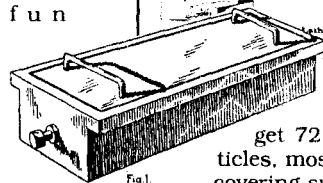
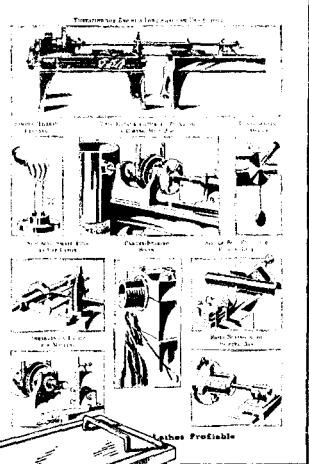
MAKING THE SMALL SHOP PROFITABLE

by John Van Deventer

reprinted by Lindsay Publications

In *American Machinist* magazine before World War I ran a series of articles on the small shop.

They were so popular that the articles were reprinted in this entertaining book. I can't guarantee you that this book will make you any money, but I'll guarantee that you will find it fun



reading!

You get 72 different articles, most illustrated, covering such topics as ideas for the small shop

blacksmith, chucks and turning, various ways of pulling keys, end mill for babbitt, prevent loral shrinkage in aluminum casting, profit making devices for turning, boring and turning kinks, the small shop grinding wheel, knurling in the small shop, getting "into" the small shop, making patterns and castings for the small shop, boring pump chambers in the drilling machine, a variety of expanding arbors, slide rest kinks and cutting tool stunts, and much more.

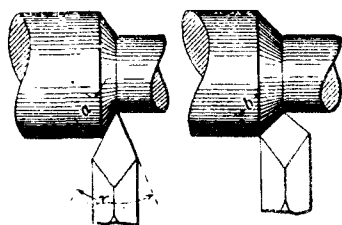
The last 50 pages or so are completely filled with drawings that will throw more ideas at you than you can handle in one sitting. This is meant to be educational, directly aimed at the one or two-man shop struggling with less-than-the-best equipment and less-than-adequate education. (Sounds like most of us, doesn't it?)

You'll find a lot of useful information here. But I'd rather promote it as fun. It's one of those books you pick up and get a good feeling.

(Of course, you're probably one of those guys that prefers the smell of hot tool steel to a woman's perfume. Hopeless...) So just don't SIT there. Order a copy of this, and THEN sit there. Enjoying. You'll like it.

8 1/2 x 11 softcover 113 pages No. 21044

\$9.95



Lathe & Planer Tools

LATHE AND PLANER TOOLS
Machinery Reference Series 7
reprinted by Lindsay Publications

Learn about "Cutting Tools for Planer and Lathe" — the basic information about grinding and setting tools that every machinist should know.

"Boring Tools" will show you some of the methods in use in 1908 that just might solve a shop problem that you'll encounter soon.

"Shape of Standard Shop Tools" discusses just that — the best shapes for the particular job. Numerous illustrations will reveal shapes, the desired rake, length of shank and how these details affect the tool performance.

Finally, explore an unusual section on "Straight and Circular Forming Tools". Learn how to calculate dimensions and build

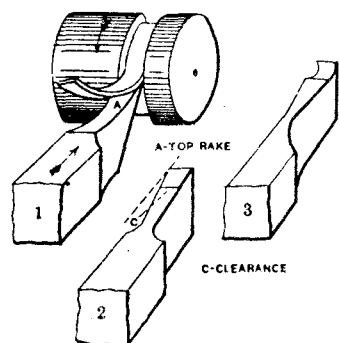
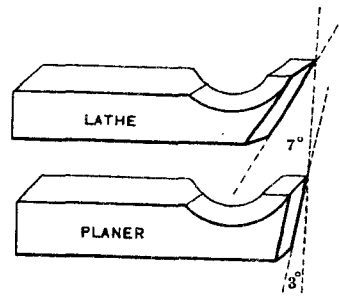


Fig. 16. Action and Form of Cutting-Off Tool.



the tools. Great information — a mixture of basic and unusual info low price. Order a copy.
 5 1/2 x 8 1/2 softcover, 40 pages.
 No. 893 \$2.95

THE CARE AND OPERATION OF A LATHE

by Sheldon Machine Co., Inc.
reprinted by Lindsay Publications

For years the best little lathe handbook available was "How to Run a Lathe" by South Bend Lathe. Not long ago, South Bend apparently decided to get out of the book business by more doubling the price of the book and by refusing to give any reasonable wholesale discount to dealers like me. In my opinion, the handbook became very expensive and lost its appeal overnight.

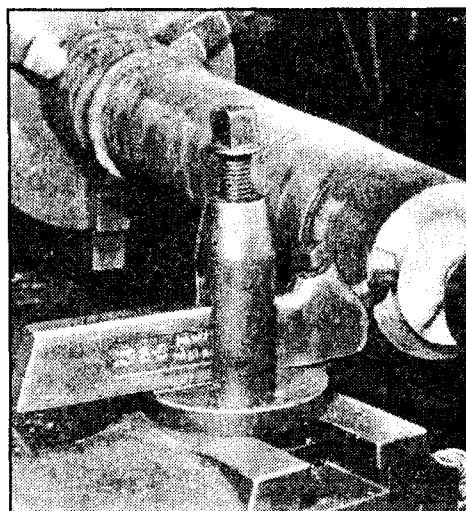
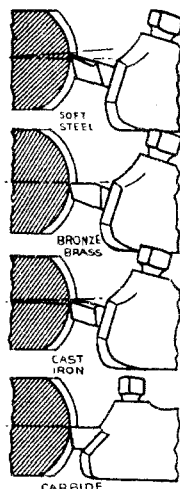
Now there's another source for the same great information.

One of South Bend Lathe's competitors in 1942 was Sheldon Machine Co. of Chicago. Sheldon saw the value of South Bend's manual and apparently knew it had to publish its own. What resulted was a booklet every bit as good as South Bend's, if not better.

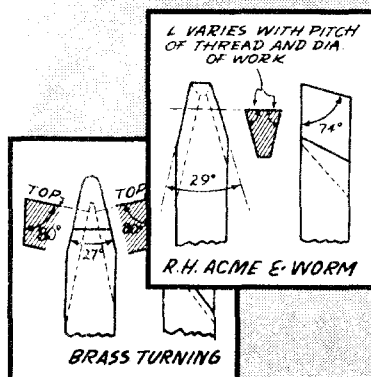
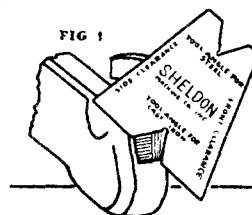
We've reprinted the Sheldon manual, and our edition sells at a fraction of South Bend's. Now you can get the same great information at a bargain price once again!

Chapters include: the modern back geared screw cutting lathe, the basic parts of a lathe, the theory of metal cutting, grinding cutter bits for lathe tools, uncrating and setting up a lathe, oiling the lathe, setting up lathe tools, setting up the work on centers, turning, facing, knurling, thread cutting, drilling, boring, cutting off, and more. You get directions on mounting work in three and four jaw chucks, drilling and countersinking centers, "Running-In" the lathe, discussions of the variety of tool holders, use of collets, tool-post grinders and much more!

No doubt, every new Sheldon lathe shipped out included a copy of this little instruction manual. You may not own a Sheldon lathe,



Care and Operation of a Lathe

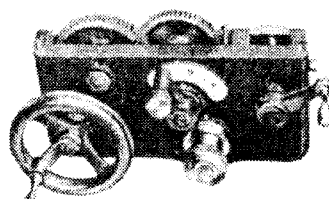


but the small Sheldon lathe was a generic machine very much like those of South Bend and a dozen other manufacturers. You'll find it useful no matter what lathe you use.

If you're just learning to use a lathe, this manual together with Fred Colvin's book, will certainly get you started. For every question these books answer, ten more questions will pop up, and that's when you start accumulating all the other books in this catalog!

Great book! Great illustrations! Great price! No lathe operator can afford NOT to have a copy of this. A gem of a handbook that should be beside every lathe. Order a copy today!

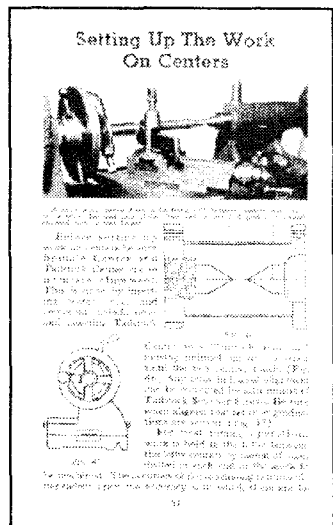
5 1/2 x 8 1/2 softcover 112 pages
 No. 21052 \$7.50



Dave Gingery Comments:

I've taken THE CARE AND OPERATION OF A LATHE to bed with me for the past few nights. I get lots of inquiries from people who have acquired older lathes. Obviously I can't afford to give my time to offering detailed answers even though I'd like to. Now all I have to do is to tell them to order this book.

My advice would be to read the book entirely before even turning the machine on. You really should not play with a lathe until you know what is in the pages of this book. Then use it as a training guide as you familiarize yourself with the machine. It will tell you how it's made and how it works, how to set it up, lubricate it and run it safely. Best of all it gives great instruction on tool-grinding and every basic lathe operation. And it displays plenty of detail on accessories so that you can easily make many of your own if you can't justify buying them. It won't be long before you are an able machinist. I'm grateful that such a book is again available.



HOW TO RUN A LATHE

by South Bend Lathe

HOW TO RUN A LATHE 1942
by South Bend Lathe Works
reprinted by Lindsay Publications

1942 Edition

Here it is! Finally!

South Bend Lathe still produces a modern edition of this book and will sell it to you at a price much, much higher than ours. We've reprinted this 1942 edition of "Run a Lathe" because copyrights on it have expired. It's new enough to be very similar to current edition, and yet old enough to be applicable to a lot of the older lathes still in use. I think you'll find that differences between this edition and the current editions are very few. Bench lathes have not changed much in decades.

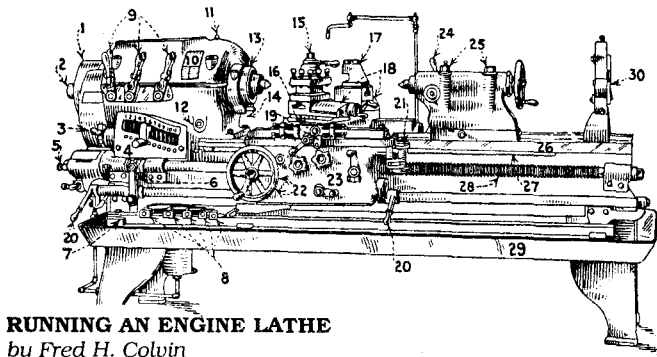
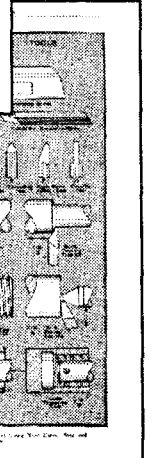
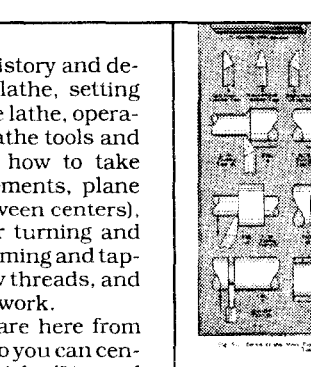
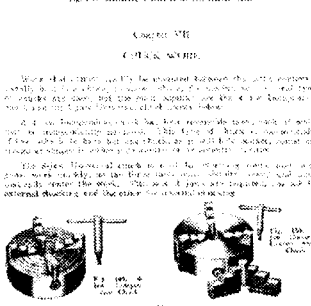
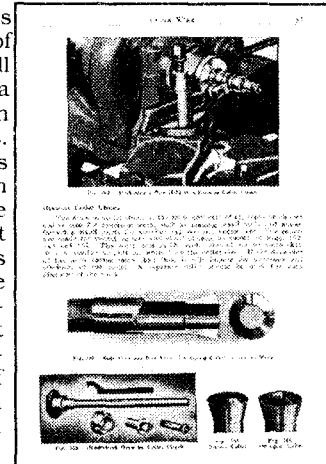
This is the lathe manual that Dave Gingery raves about, and a manual comparable in every way to Sheldon's lathe manual offered in our catalog. You get everything you could need to set up a lathe and get it running.

You get eleven chapters: history and development of the lathe, setting up and leveling the lathe, operation of the lathe, lathe tools and their application, how to take accurate measurements, plane turning (work between centers), chuck work, taper turning and boring, drilling reaming and tapping, cutting screw threads, and special classes of work.

All the basics are here from sharpening drills to you can center drill to "superfinished" turned bearings, grinding valves, and turning multiple screw threads.

Remember, this is an introductory guide that was no doubt shipped with South Bend Lathes back then. Under no circumstances are you going to learn what is covered in "Advanced Machine Work". This will get you going. And if you're just learning to use a lathe, you have to have a copy of this or something very similar. It's the nuts.

This isn't the current edition. In fact, belt driving the lathe is still covered. But it's completely useful. Great book. Great illustrations. And finally, a great price! Get a copy. You can't afford not to



RUNNING AN ENGINE LATHE

by Fred H. Colvin

If you're just starting out using a metal cutting lathe, or you're trying to learn techniques you feel you should have known all along, then grab this. This small, but jam-packed book will show you all the basic techniques of running a lathe.

Thirteen chapters cover the engine lathe, centering lathe work, driving the work, tools and turning, steady and follower rests, faceplate work, chucks and chucking, boring tools, taper turning, cutting screwthreads, test indicators and their use, three types of centering mandrels and care of the lathe.

You'll learn all about essential operations in easy-to-read and understand text illustrated with simple, clear drawings. You'll learn about different kinds of dogs (not the barking type), split collars, toolholder and bits, work with shoulders, boring the end of a bar, home-made follower rest, saving a poor casting, bridle for faceplate

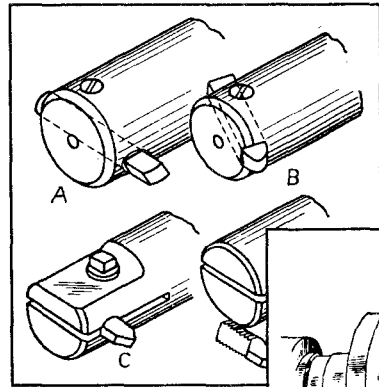
RUNNING AN ENGINE LATHE

"Practical suggestions which will give the young machinist or apprentice the foundation principles of engine lathe work."

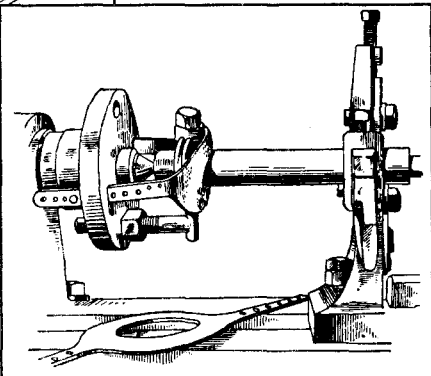
work, slotted chucks for flat work, precision drilling, boring cylinders, ways of figuring tapers, rapid thread cutting, cutting a double or triple thread, cutting Brown & Sharpe worm threads, using dial indicators, and much, much more.

There are many tables describing tapers, V threads, square threads, ACME threads, grinding angles on many different tools, and more.

The author was an old man when he authored this in 1941. He was editor emeritus of American Machinist magazine, and was the Colvin of Colvin & Stanley fame that turned out American Machinist handbook and countless texts. The man was an expert machinist.



Here's a great little book at a great little price that you can't afford not to have, especially if you consider yourself a beginner on a lathe. Excellent book! Bargain price. 5 1/2 x 8 1/2 softcover 117 pages No. 4708 \$6.95



Another Colvin Classic!

BASIC LATHE

BASIC LATHE OPERATION (AND MORE)

with Steve Chellis
produced by Bob Bailey

Let Steve Chellis show you the basics of lathe work in this surprisingly good video. Chellis has been a journeyman machinist for more than 40 years, and for the last 15 years has operated Chellis Machine and Tool. He has trained a number of apprentices. Through this video you can be his latest.

You'll start out by examining the tools you'll need to layout work and cut threads. You'll take a close look at thread gauges, measuring wires, dial micrometers, center gauges, a surface plate, surface gauges, dial mikes, and more.

At the grinding wheel he'll show you how he cuts a lathe tool from a high-speed steel blank. Then you'll learn how to cut threads in the lathe, measuring as you go to ensure accurate, high quality work.

You'll watch Chellis mark out a steam engine eccentric which must be part of the 4" scale traction engine he is building. The eccentric is chucked in the lathe, the shoulders are turned down. After rechucking the eccentric, the casting is drilled and bored. You'll watch each step, and he'll talk to you, giving you hints and tips, as he makes the cuts.

You'll see a set up he devised to bore what looks to be the cross-head for his engine. The home-made boring bar was made from a 1 1/2" diameter hunk of cold rolled steel. You'll watch it zip through the casting.

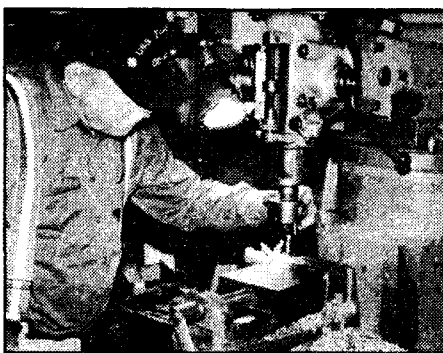
You'll see other things, too. Watch him cut threads on the engine steam chest after getting the casting accurately positioned in the four-jaw chuck. You'll find useful ways



to use a dial micrometer and center-finding wiggler. You'll get tips on using a steady rest as you watch him clean up a shaft and drill a new center hole.

The video quality is surprisingly good. The producer/publisher, Bob Bailey, has done an excellent job producing these tapes for such a specialized market. If you're expecting some bimbo to appear in leotards and do aerobics, ferret this. But if you want to watch metal chips fly, order a copy. This and a good lathe book (plenty of them in this catalog) will get you going in the machining hobby. Consider this carefully. 61 minutes video VHS format (NTSC - will not play on PAL or SECAM systems)

No. 1350 \$32.95



BASIC MILLING

BASIC MILLING MACHINE OPERATION

with Steve Chellis
produced by Bob Bailey

This video opens with a Stirling engine rattling off the revolutions, but quickly shifts into milling machines, their tools and the necessary set ups to get precision results.

Steve will show you his tools including end mills, collets, drills, tap starters, edge finders, wigglers (center finders), a boring head, a home made fly cutter, a Jacobs chuck, carbide insert miller cutters, taps and lots more.

Then he'll take you over to his vertical mill

and show you all the controls from vertical quill feeds to table controls.

VIDEOS!

He'll briefly mention what to avoid if you intend to buy a used milling machine.

First off, you'll square up a one inch thick aluminum plate. Steve will show you how to clamp it to the milling machine table and use a dial indicator to true it up. You'll see how useful homemade stop blocks can be in setting up the work. You'll drill a hole, and then bore it out without removing the plate from the table.

You'll see how to use a rotary table, how to set the head an angle and then true it up again, how to use a sine plate to measure angles, set up work on a sine plate, and more. You'll learn how to use a vice on the table, square it up with the dial indicator, use a variety of homemade jigs and fixtures to mount the work.

And finally, Steve will show you how an indexing head and a rotary cutter are used to cut gears.

Admittedly, a great deal of material is covered in a single hour. But this tape when used with a good machine shop book or two (and I'd be tickled to sell 'em to ya), will drive home lessons that could be tough to understand when seen in print.

An interesting tape. Great basic material. Something worth considering. Videos aren't cheap, but consider how many expensive castings you could ruin before you learned some of the basic lesson taught here. A video isn't so expensive when you think of it that way. Think about ordering one. VHS video about 1 hour

No. 1351 \$32.95

COMPLETE 1934 SOUTH BEND LATHE CATALOG!

1934 MODEL SOUTH BEND LATHES

by South Bend Lathe Works

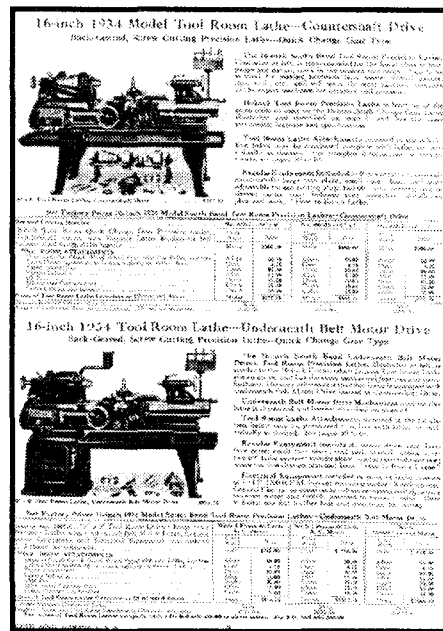
reprinted by Lindsay Publications Inc

If you wanted to buy a small engine lathe during the Great Depression, you would have searched through this illustrated gem from February 1934.

You'll see all kinds of lathes: bench lathes, tool room lathes, toolmaker lathes and more. You get photographs. You get all the specs. You'll also get floored by the prices: a 9" toolmaker lathe with a 2' bed including face plate, change gears and motor for \$138.00.

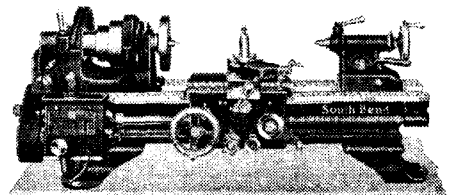
You'll also see a 36" brake drum lathe, self-centering mandrels, collets, taper and milling attachments, turnstile bed turrets, chucks, dogs, knurling tools, and other accessories.

If you have an old South Bend lathe, dream about finding one, collect tool catalogs, or are just a lathe fanatic, this is a must have. YOU CANNOT ORDER FROM THIS LATHE CATALOG. It is for entertainment purposes only. (Believe it or not, there are always a couple of boneheads who read this



catalog who think they can successfully order from a 60 year old reprinted catalog. Don't you be one of them...)

Interesting catalog. Get one. Fun reading. 8 1/2 x 11 softcover 72 pages
No. 21397 \$7.95



LATHE DESIGN

Design details of 1916 lathes and more...

LATHE DESIGN — Construction and Operation

by Oscar Perrigo

reprinted by Lindsay Publications

We first reprinted this 1916 book over ten years ago, but discontinued it a few years back. We've now reissued it. It may be available for a year or two before we let it disappear again. With paper prices so high these days, these big books are becoming too expensive to print. I make you no promises how long we'll carry this.

Chapters include history of the lathe up to the introduction of screw threads; the development of the lathe since the introduction of screw threads; classification of lathes; lathe design: the bed and its supports; lathe design: the head-stock casting, the spindle and the spindle cone; lathe design: the spindle bearings, the back gears and the triple gear mechanism; lathe design: the tail-stock, the carriage, the apron, etc.; lathe design: turning rests, supporting rests, shaft straighteners, etc.; lathe attachments; rapid change gear mechanism; lathe tools, high-speed steel, speeds and feeds, power for cutting-tools, etc.; testing a lathe; lathe work; engine lathes; heavy lathes; high-speed lathes; special lathes; regular turret lathes; special turret lathes; electrically driven lathes; and practical instructions on lathe operation.

Covering the almost 500 pages are three hundred and forty-one engravings illustrating everything from a modified parabolic lathe bed to a test piece for ascertaining if the head-stock spindle is parallel with the

V's. You'll see engravings of various (but far from all) lathes such as the 20 inch swing turret head chucking lathe built by F. E. Reed Company.

This is a great book for lathe

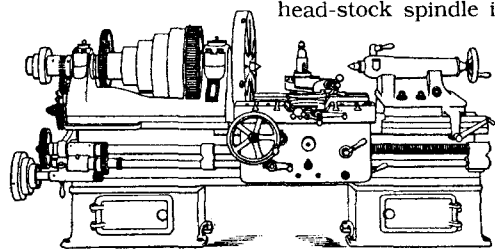


FIG. 241. — 24-inch Swing Engine Lathe built by the R. K. Le Blond Machine Tool Company.

fanatics and machinery nuts (couldn't be YOU I'm referring to, could it?). Lots of pictures, lots of information on all kinds of lathes, and lots of ideas and useful info. It's a time machine and almost an encyclopedia. Expensive but useful

and entertaining. Think carefully about getting a copy. Put it on your charge card. Get a second mortgage. Sell the ol' lady to the gypsies. I don't care. Just get a copy. You'll like it. (Oh, and be sure you tell the gypsies you're selling her as is...) 5 1/2 x 8 1/2 softcover 469 pages

No. 4180

\$24.95

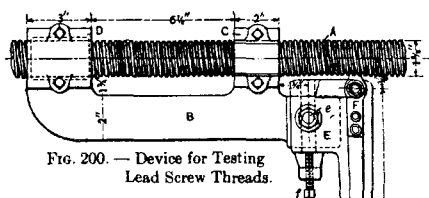


FIG. 200. — Device for Testing Lead Screw Threads.

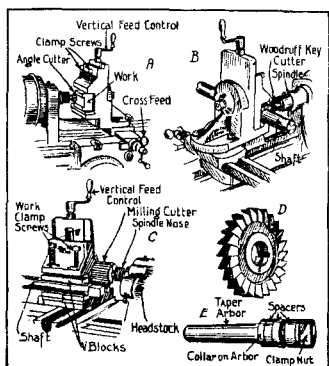


FIG. 324. — The South Bend Milling Attachments and Its Use.

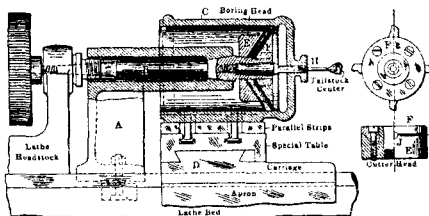
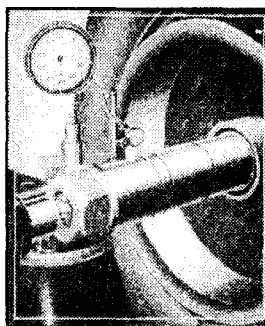


FIG. 217. — Cylinder Boring in the Lathe.



SOUTH BEND LATHE BOOKLETS

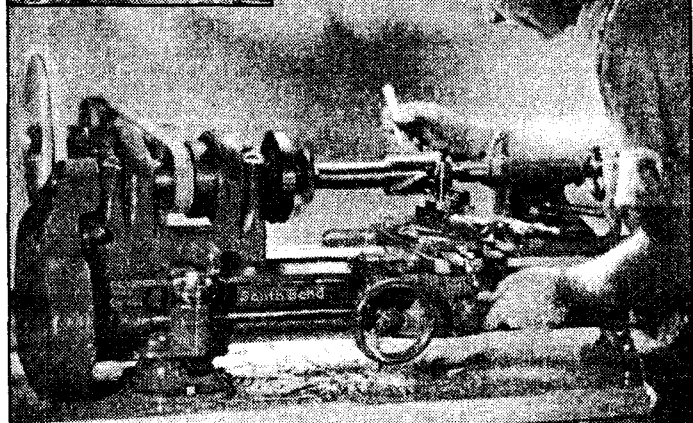
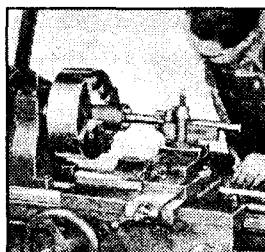
by South Bend Lathe Works
reprinted by Lindsay Publications Inc

In addition to *How to Run a Lathe*, South Bend also published small booklets ranging from eight to twenty-four or more pages, each booklet dedicated to a particular topic. I was able to acquire eight of the most popular 1936 booklets from a customer like you.

To publish each individually would have made them far too expensive. So to keep the price down I took all eight and reprinted them in a single cover.

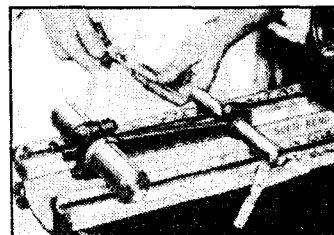
In one volume you get:

- How to Grind Valves, Sharpen Reamers and Cutters in the Motor Service Machine Shop



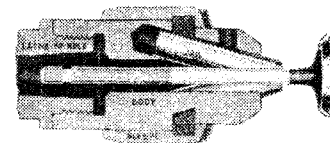
SOUTH BEND LATHE BOOKLETS

- How to True Brake Drums of Automobiles, Buses, and Trucks
- How to Test and True Differentials
- How to Bore Rebabbed Connecting Rods
- How to Make Bushings
- How to Finish Pistons
- How to Grind Lathe Cutter Bits
- How to Cut Screw Threads in the Lathe



Obviously, South Bend was very much interested in promoting its products, and they knew the best way to do that was to show people how useful a lathe could be. These booklets are of exactly the same style of *How to Run a Lathe* being heavily illustrated with photographs and drawings. The section on cutting screw threads is, obviously, very similar to the chapter in the edition of *Run a Lathe* that we reprinted, but certainly not identical. The other booklets present new material.

Great stuff! Excellent illustrations. Fun reading. Useful how-to. This something worth having. Order a copy! 6x9 softcover 96 pages No. 21583 \$7.95



A detailed technical diagram of a tapered roller bearing assembly. The diagram shows the outer ring, inner ring, and rollers. A dashed line points to a small pin labeled "TAPER PIN" which is used to secure the bearing. Below the main assembly, a separate component is shown with a hole labeled "TAPER HOLE".

You get a compilation of metal lathe articles that ran in the pages of

metal lathe articles
that ran in the
pages of



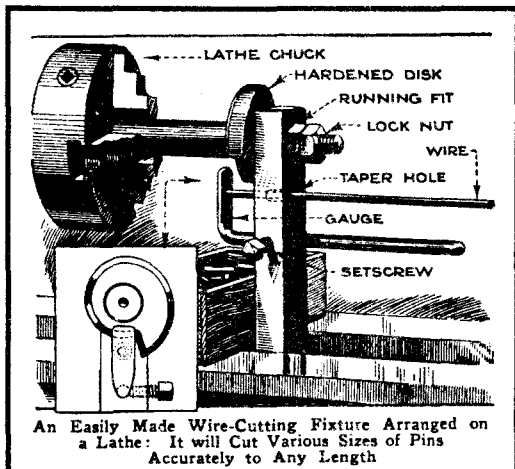
TAPER HOLE

LATHE HANDBOOK

Popular Mechanics magazine in the early 1920's. Their articles are interesting and formative, the ideas they generate are valuable, and the illustrations are even better!

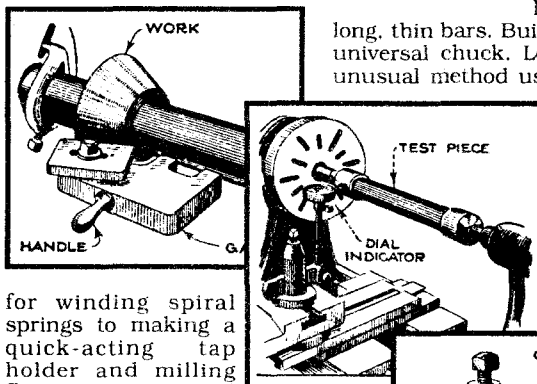
Page one starts with a detailed article on building a lathe.

Page one starts with a detailed article on building a 6" bench lathe. Then you get dozens and dozens of smaller, well-illustrated articles describing a simple chip shield, auto hub as lathe and drill press, special lathe tools and attachments, lathe tool for radius cutting, simple relieving attachment for the lathe, and more. Learn how to make a tool holder with a set of



Popular Mechanics magazine early 1920's. The interesting and in as they generate illustrations are article on building s and dozens of mple chip shield, pools and attach- g attachment for der with a set of cutters, a re- volving tool holder for the lathe, a lathe center-hole mandrel, ball-bearing tailstock center, adaptable jig for turning pulleys in a lathe, and on and on. You get plans and in- structions for making a vari- ety of indica- tors, gauges and test ligs.


Hold small screws in the lathe. Support with a adjustable clamp. Learn about and use to reface a large wheel on a lathe rigged as a grinder. And there's much more - from straightening a bent reamer to a device



for winding spiral springs to making a quick-acting tap holder and milling flutes in taps and reamers.

You probably already know many of the hints, kinks, and methods presented here. But there is so much, I'll bet you'll learn something new the minute you page through this jam-packed book. Any machinist will enjoy just looking at the incredible illustrations. I knew this was something that should be reprinted the moment I saw it. You'll like it too. It's inexpensive, and definitely worth having. Order a copy!

6x9 softcover 87 pages
No. 20838

GAUGE

\$7.95

\$7.95

LATHE OPERATIONS

If you've seen Shaper Operation or Planer Operations, then you know what this about.

You get a brief introduction to the lathe, cutting speeds and lubricants, cutting tools and their use, and then you get detailed step-by-step lessons.

You'll learn about grinding centers, aligning tailstock center to a test bar, machining a steel pin, machining a steel shaft, machining a forged steel shaft, machining a forged steel rotor, machining a forged steel gear and spindle, machining a forged steel roll,

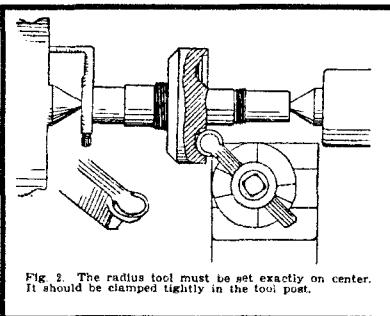


Fig. 2. The radius tool must be set exactly on center. It should be clamped tightly in the tool post.

And the lessons continue. Machine a cast-iron hand wheel, a cast-iron gear, worm, cylinder head, a cast steel trunnion, a

brass spacing washer, a brass taper sleeve, a cast-iron packing box bushing, and many more.

more. Within these lessons you'll learn to machine a dovetail surface, ream a taper, enter a casting, and, how to understand an internal taper. You'll machine a steady rest, machine a crank, and more.

Here's a machine shop course you can take at your own speed.

**Fifty one detailed,
educational projects!**

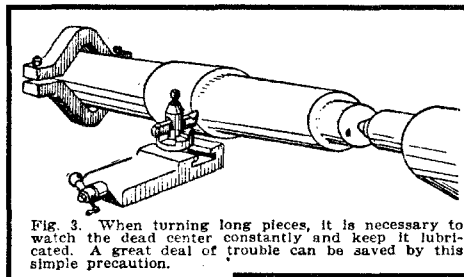


Fig. 3. When turning long pieces, it is necessary to watch the dead center constantly and keep it lubricated. A great deal of trouble can be saved by this simple precaution.

Combine this with several other quality books from this catalog, and you can become an expert machinist. If this were published today, it would probably cost you at least twice our price. And how

machining a spotfacing bar (for Morse and Brown & Sharpe Tapers), and Machining a Tool Steel Lathe Center.

After a straight-to-the-point discussion of screw cutting, you'll learn the secrets of machining a forged steel body-bound bolt, machining a machine steel taper bolt, machining a tool steel screw, machining a machine steel worm, and more. When you're done with these lessons, you'll be able to cut a quadruple 1/4" pitch, 1" lead Brown & Sharpe RH thread, a 4-pitch right hand single But-

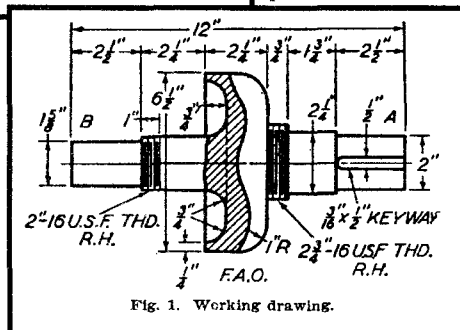
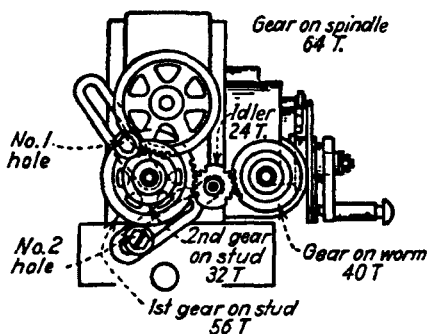


Fig. 1. Working drawing

much of this has changed since 1937? Zilch.

Get a copy of this. It's quality.
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8 1/2 x 11 softcover about 176
pages
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Colvin: Running a Milling Machine!

RUNNING A MILLING MACHINE

by Fred H. Colvin

reprinted by Lindsay Publications

Colvin, "Mr. Machine Shop", writes in the preface:

"Although this book is by no means a complete treatise on all the problems of milling machines and the large variety of work that is done on them, it makes clear the general construction of the different types of machine and gives a general idea of the kind of work they do. It shows how the different machines operate, points out the necessity of having the work firmly clamped and the cutters sharp, and gives the foundation of the knowledge necessary to become a first-class milling-machine operator.

Beginning with the hand milling machine, which is the simplest machine of this type to learn how to operate, the book shows the other and more largely used kinds, gives the names of the principal parts, and shows a variety of the work that is done on them..."

This is a great companion to "Running an Engine Lathe" that was first published in 1941. Chapters include milling machines and their parts, examples of milling machine work, milling cutters, speeds and feeds of milling cutters, setting cutters for different kinds of work, milling vises and fixtures, the dividing head, a wide-range dividing head, and cutting helices sometimes called spirals.

Although most of the milling machines illustrated are horizontal machines just like the machine Dave Gingery will show you how to build, the material here is general enough to be useful on any milling machine - horizontal or vertical or even on milling attachments for lathes.

Well illustrated. Useful info. Worth having. Get a copy! 5 1/2 x 8 1/2 softcover 157 pages

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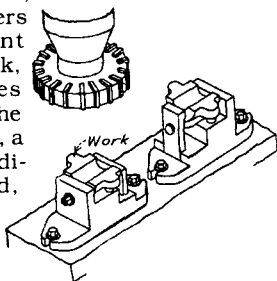


FIG. 92.—Double fixture to secure continuous milling.

MILLING MACHINE OPERATIONS

by J. W. Barritt

reprinted by Lindsay Publications

Here you get valuable lessons that can make you an expert with a milling machine. You get an introduction to the milling machine, the care of arbors, mounting the work, feeds and speeds, clearance angles and other essential topics.

You get step-by-step instructions and drawings that will teach you how to cut off a brass packing piece, cut off a cold rolled steel plate, saw a Bakelite plate, machine a brass spacer, a cast-iron bearing key, and several cast iron brackets.

Then you will be introduced to the indexing head and its use. You'll learn how to cut a tang on a tool-steel spotfacing bar, mill a machine steel latch pin, mill a machine steel stud and a variety of shafts, machine a cast-iron gear, a steel quadrant, a steel clutch with four flat teeth, a cast-iron bevel gear, a brass shoe, a cast-iron soleplate, a forged steel packing piece, a machine steel pull pin, a steel gear, a steel worm, and more.

Most of the lessons show set ups for the horizontal milling machine which is the traditional miller that Dave Gingery shows you how to build in his books. Towards the rear

Milling Machine Operations!

Make your milling machine sit up and sing, instead of chatter...

of the book are several lessons for the vertical milling machine. Regardless of the type of machine you have, the lessons are applicable. You'll learn how to approach the work so as to ensure accuracy and avoid costly mistakes.

Make your milling machine sit up and sing rather than make it chatter! Quality lessons! Loaded with illustrations. Order a copy today. 8 1/2 x 11 softcover 110 pages No. 21141 \$9.95

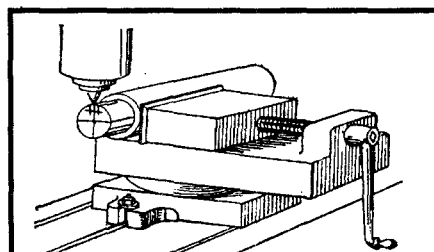
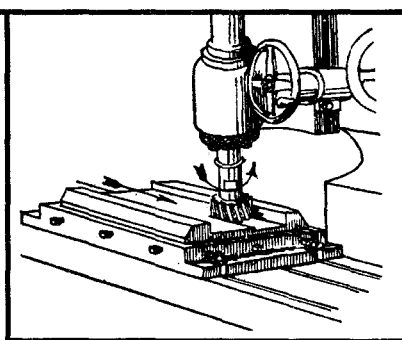


Fig. 2. This is one way of centering the work with the spindle. It is necessary that the keyway be cut on the center of the shaft.



Cincinnati's Treatise on MILLING AND MILLING MACHINES

TREATISE ON

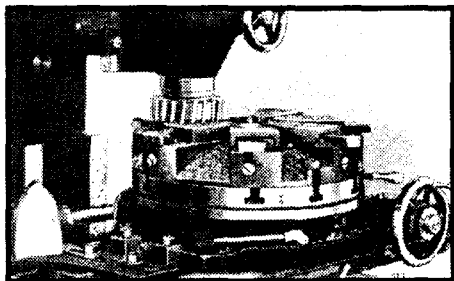
MILLING AND MILLING MACHINES

by Cincinnati Milling Machine Co

reprinted by Lindsay Publications

In 1919 Cincinnati published this book to teach machinists about the significant changes and uses of milling machines that had resulted from World War One. Despite its age, this book can teach you a lot, too.

You'll find page after page of great photographs, drawings, and easy-to-read text that explains everything from the construction of milling machines and their installation, to the use of jigs, milling cutters, and indexing heads. You get loads of tables, simple and yet detailed explanations on how to make necessary calculations (should be easy with today's pocket calculators), and even tips on unusual milling jobs. And there is much more.



Although most of the examples are for horizontal milling machines, the vertical model is also shown and discussed. Most operations are common to both machines. You'll find that the lessons taught here are valuable regardless of the type of machine you have.

This is a gem of a book containing a wealth of information for any machinist — and that includes you. Put a copy in your machine shop reference library. It's excellent! 5 1/2 x 8 1/2 softcover 409 pages No. 20358 \$13.95

CONTENTS

Construction and Use of Milling Machines • Erection, Care and Adjustment of Milling Machines • Toolroom Millers — The Dividing Head, etc • Setting up the Machine • Analysis of the Process of Milling • Milling Machine Feeds • Speeds of Milling Cutters • Stream Lubrication — Cutter and Work-Cooling System • Milling Cutters — Notes on the Design & Efficiency of Modern Cutters • Cutter Sharpening • Power Required to do Milling • Various Methods of Milling • Milling Jigs and Fixtures • Sizing and Cutting of Spur Gears • Shop Trigonometry — Bevel Gears and their Calculation — Instructions for Cutting Spiral Gear Cutting — Calculations, Formulas, Tables, etc • Worm Gearing — Calculations and Methods of Cutting • Continued Fractions and their Application to Shop Problems — Angular Indexing • Change Gears for Cutting Spirals • Cams — Tables for Setting the Milling Machine for Milling Spiral Cams • Tables of Natural Trigonometric Functions

Build a Metal Lathe!

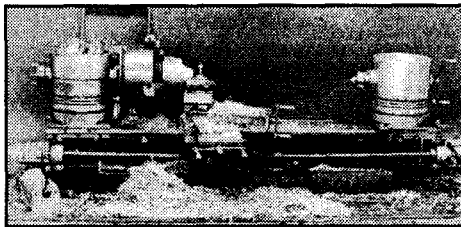
METAL LATHE

by Ben Fleming

You can build a precision lathe without castings that has almost a 10" swing over the three foot bed. And you can do it with little more than hand tools and a small drill press. A 3' bed provides about 22" between centers, but the bed can be extended several feet if you want. Four speeds are provided on the prototype. You get a compound rest, and a cross slide with about 4 1/2" of travel.

Ben writes in his manual, "No outside machining is required. The lathe is bolted together for all parts but three, which are brazed or welded together... The only 'precision' tool I used in the lathe construction was a good quality framing square. Using the construction methods as outlined in these plans, I was able to produce a

lathe that, on its first test, showed only a .007 error, and with a few simple adjustments, can be brought close to a tolerance of .001."



Dave Gingery and Ben Fleming swapped ideas from the beginning. Dave comments, "His plan answers very well to the man who wants a larger lathe. Well thought out project, and within the ability of the average do-it-yourselfer, I think."

Cost of the prototype was \$185. One of Fleming's design

tricks is the use of large truck pistons instead of castings.

You get a detailed 49 page construction manual. You'll get recommendations, step-by-step instructions, hints and tips, as well as addresses of suppliers for tools and any special parts that you might need.

There is no provision for power feed on the lead screw, and therefore, this is not a screwcutting lathe. But by the time you build a copy, you might have figured out an ingenious way to add it. Even so, this is a powerful, precision lathe that can turn out quality work for you.

Following the text are many photos and layout templates to make the construction fast and easy. A fine lathe. Consider building one. At the very least put this book in your library. 8 1/2 x 11 softcover 49 pages well illustrated

No. 1212

\$13.95

Build a Milling Machine!

VERTICAL MILLING MACHINE

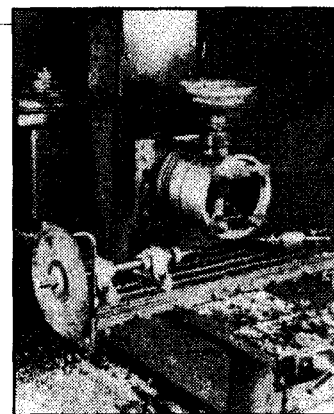
by Ramah Machines

The proven construction techniques used in the "Nephite" lathe project have been used to build a powerful, precise vertical milling machine. The universal milling 6" wide 4" high table that you will build will provide 13" X travel and 6 1/4" Y travel. And the table will allow milling at angles. Tests show that the maximum thickness of material that can be milled is 6 to 7". Four spindle speeds are provided with an optional high-low range. Max depth of cut in mild steel with a 3/8" four flute

end mill was .035". A 1/2" two flute mill in aluminum cut .220" deep. Max height of the machine is 37" and weighs in at about 260 pounds. It uses a 1/4 to 1/2 hp motor.

You'll need a lathe to machine the spindle, but other than that all you'll need is the usual drill press and hand held electric drill, plus the usual hand tools. No castings.

A lot of valuable information for a very low price. What would it cost to buy a mill? How many hours would you waste perfecting your own design? It's worth it. Order a copy today.



8 1/2 x 11 booklet about 85 pages.

No. 1209

\$13.95

METAL DISINTEGRATOR

by Ramah Machines

When you snap off a drill, tap, or even a stud deep in a block of steel, you're in trouble. It's a first class pain in the neck to remove it. But it's easy with this metal disintegrator. Essentially this is an vibrating engraver driving a commercially available electrode into the metal. An electric spark eats away the metal, leaving a clean hole.

At first you might think that such a machine is an awfully elaborate solution to a infrequent problem. But the beauty of this machine is that it is the first cousin of ECM machines — those high tech devices that perform machining miracles. This might be a starting point for the development of a small home shop ECM machine.

The disintegrator is built from commonly available materials. A lathe or milling machine

Metal Disintegrator

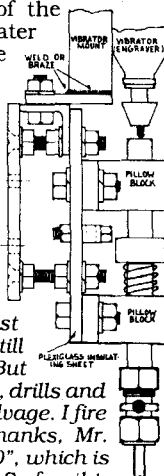
is not required. You get details on assembly of the vibrating head, electrode selection, fabrication of water flow device, power supply, and much more. The prototype cost \$275.00 with new equipment, and that's a lot less than \$7000 for a commercial unit.

Again, if you don't need a disintegrator, the ideas and info here should be useful in investigating ECM concepts. Very unusual device. Small but excellent booklet. Worth its price. 8 1/2 x 11 booklet 34 pages with photos and drawings. No. 1277 \$10.90

Mr. Lindsay:

I built Benjamin Fleming's metal disintegrator and use it often. I work as an automotive machinist and broken bolts are an occupational hazard. I still drill them out. (When you're good, you're good.) But those that clumsy mechanics have broken off — taps, drills and (the notorious) easy-outs — are no longer beyond salvage. I fire up the "tap burner" and before you can say "thanks, Mr. Fleming", it's out. I then get to say "that'll be \$25.00", which is half the going rate, and split the take with the boss. So far, this machine has paid for every book I have gotten from you and I hope to make it build a much bigger library...

J. I., Fort Worth TX



GEAR CUTTING PRACTICE

by Colvin & Stanley

reprinted by Lindsay Publications

The high gods of the machine shop, Mr. Colvin and Mr. Stanley, will teach you how to cut gears in this reprint of their 1937 text, subtitled "Methods for Producing Gears for Commercial Use."

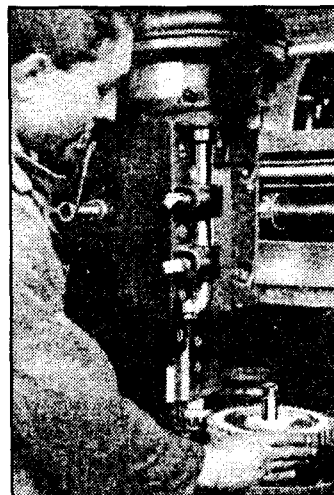
Chapters include gear cutting practice, spur gears and circular cutters, shaping method of cutting gears, helical and herringbone gears, hobs and cutters, bevel gears, worms and worm gears, internal gears, heat treatment, burnishing, shaving, lapping and grinding gear teeth and more!

CUTTING GEARS!

This book was written for industry so there will be a lot of material you can't use. But it's better to get too much info rather than not enough. You'll get an education in gear geometry, the best alloy compositions to use for gears (in 1937), specs on keyways, using the dividing head, comparison of hobbing versus milling gear teeth, commercial hobbing machines available, vertical shapers designed for cutting gears, details on hobs, their use and sharpening and on and on.

You get charts, tables, nomographs, photographs, drawings, and more. It's heavily illustrated. Again, you'll see a lot of big machinery since this is an industry text. If you cut gears or ever intend to, this reference will teach you something practical even if you only have a 3" lathe with a milling attachment. A standard work by the standard dynamic machine shop duo: Colvin & Stanley. Get a copy!

5 1/2 x 8 1/2 paperback 344 pages No. 20889 \$14.95



HANDBOOK OF MECHANICAL DESIGN

by Nordenholt, Kerr & Sasso
reprinted by

Lindsay Publications Inc

This gem of a practical design handbook appeared in 1942, and was essentially a reprint of practical design articles from *Product Engineering* magazine. You get practical design ideas, variations, bits and pieces, hints and tips, basic formulas, and even electrical information for getting the job done. The theory is practical and straight to the point.

Chapters include charts and tables; materials; beams and

ers, stresses in cantilever beams, and more. You'll learn about various types of springs, their natural frequency, design calculations and drawings, graphs to simplify calculations and more.

Then you get a picture section illustrating various ideas and variations for locking devices, retaining and locking detents, taper-pin applications, hinges and pivots, clamping shoes and plugs, lock bolts, machine clamps, door and cover fastenings and more.

The power transmission section will help you with simple calculations to size components

Mechanical Design

Practical 1942 Illustrated How-To

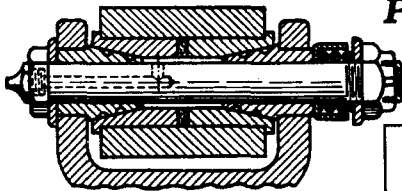


FIG. 155.—Radial and axial play are taken up by the hardened and ground bushing.

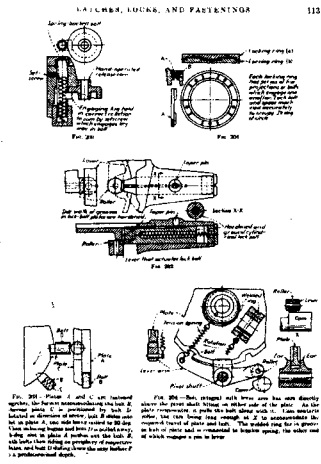


FIG. 159.—Self-adjusting socket joint. The sheet-metal spring cover is held in place by two screws.

structures; latches, locks and fastenings; springs; power transmission elements and mechanisms; drives and controls; and design data on production methods.

You get charts and nomographs for calculating useful things like finding the length of material needed for 90° bends (such as electrical conduit). Or volumes (in gallons) of horizontal round tanks with flat ends. Or for calculating the weight of a certain number cubic inches of brass (or vice versa). You get data on alloys from simple old gray iron to stainless. You get a detailed chart of "Characteristics and Uses of Wrought Brasses and Bronzes". And much more.

You can calculate stress on aluminum sheets, compression members, shear members, diagonal tension webs, hollow gird-

ers, stresses in cantilever beams, and more. You'll learn about various types of springs, their natural frequency, design calculations and drawings, graphs to simplify calculations and more.

Then you get a picture section illustrating various ideas and variations for locking devices, retaining and locking detents, taper-pin applications, hinges and pivots, clamping shoes and plugs, lock bolts, machine clamps, door and cover fastenings and more.

The power transmission section will help you with simple calculations to size components

in your transmission set up. You also get page after page of fascinating drawings illustrating couplings, clutches, gibs and guides, bearings, change gears, automatic feed hoppers and more.

Explore drives, controls, types of motors and their characteristics from starting to running under full power. You explore various types of three phase motor windings, simple rectifier circuits for changing AC to DC (most of which I'm sure has been replaced by new technology), and more.

Learn production methods for fusion welding, resistance welding, furnace brazing, flame hardening, centrifugal casting, permanent mold casting, die-casting, forging, flame cutting and powdered metal pressings.

Even if you don't build anything, the "pitchers" are "purdy", and you're sure to learn something no matter what page you open the book to. In other words, this is a fun book to browse through. Get one! 8 1/2 x 11 softcover 277 pages No. 21540 \$19.95

SHOP THEORY

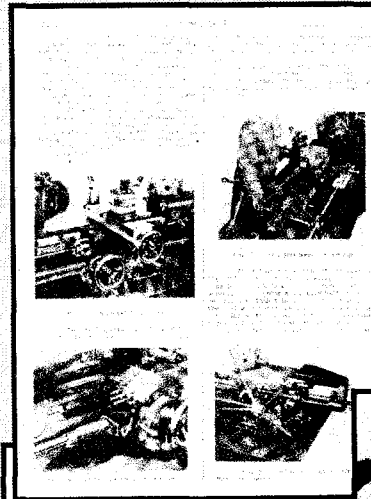
by Henry Ford Trade School

reprinted by Lindsay Publications Inc

"Eliminating all non-essentials, this book gives you a quick working knowledge of the basic tools, machines, and instruments, and the fundamental operations of machine shop work. It tells you how all the machines and tools used were developed, how they are constructed, and how to operate them. It explains heat treatment and gearing. It includes the mathematics needed for shop work, and stresses safety rules. Every step of machine shop work is pictured clearly both in text and illustration. An industry-developed shop course which already has helped prepare thousands of men for payroll jobs."

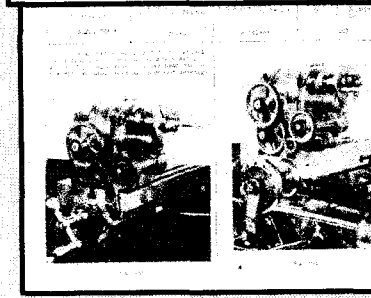
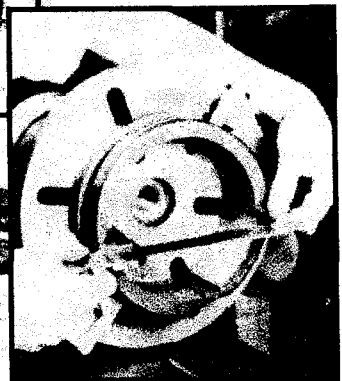
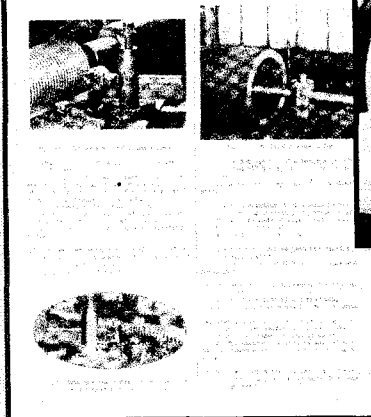
This book started out as mimeographed sheets, but so many people wanted copies that the school published the notes as a book. By the time this edition was released more than 150,000 copies had been distributed to schools all over the

Learn MACHINE SHOP from Henry Ford! Well, almost...



country. And it no doubt helped win World War II.

This is the entire '42 edition typewritten, loaded with drawings and photographs. Chapters include decimal equivalents, formulas, small tools, rules, micrometers, vernier gages, chisels and chipping, hack saws and sawing, files and filing, soldering, shop review, drills and drilling, tapers, threads, gearing, cutting tools, shaper, planer, lathes, turret lathes, milling machine, gages and gage blocks, heat treat-



ment, abrasives and grinding wheels, grinding machines, and routing of bench tool work.

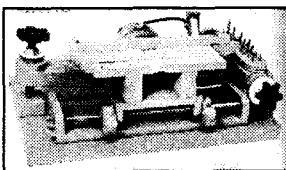
This is a gem. There are many machine shop books on the market. Although this edition was abandoned by Ford, probably being replaced by something more modern, it is still one of the best books of its type around.

Need a good basic machine shop book? Get this one. You'll like it. 8 1/2 x 11 softcover 267 pages No. 20064 \$16.95

Make & Modify MACHINES

MAKING AND MODIFYING MACHINES

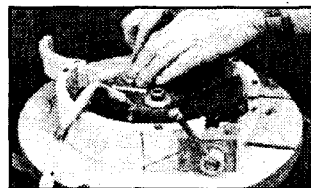
articles from
Fine Wood-
working
Magazine



You get re-

prints of 29 different articles on making and adapting machines for woodworking. It's great! And with a little imagination, you can take the ideas here and adapt them to metal working machines in some cases.

Articles include chainsaw lumbermaking, a wooden table saw, shop-built panel saw, shop-built sliding table, building a walking-beam saw, treadle band saw, radial saw meets computer, wooden jointer, a sanding-disc jointer, a low-tech thickness sander, an abrasive planer, a disc sander, inflatable drum



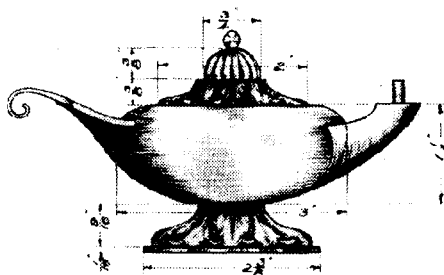
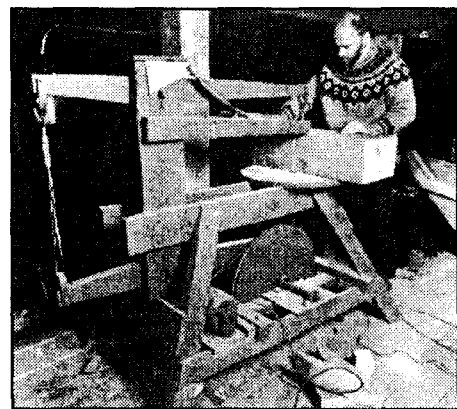
sander, wooden-drum stroke sander, a swing-away drill-press table, an oscillating spindle sander, making shaper knives, shaper cutters and fences, custom shapers for period moldings, horizontal boring machine, making a router table, the router rail, miniatures by machine, shop-built sharpener, treadle lathe, freewheel lathe drive, a shop-made bowl lathe and others.

You get great ideas, plans, and operating tips. I like the conversion of a garbage disposal into a water-cooled grinder for sharpening wood chisels. Could that be adapted to grind lathe tools and millers? The wooden jointer and table saw are certainly nothing the laugh at. And the treadle wood lathe is a beauty, although I doubt you'll ever adapt it to cut a 5/8-11 left hand thread!

Excellent book. Yes, it's woodworking, but any do-it-yourself machine freak should find it interesting and useful. That's you, isn't it? Well, then order a copy. Lot's of plans for a very reasonable cost. Get one. 5 1/2 x 8 1/2 softcover 140 pages

No. 1338

\$9.95

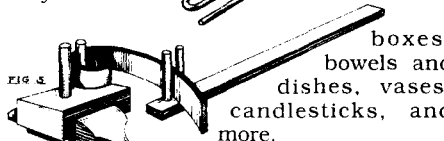


Sheetmetal Skills!

METALWORK FOR CRAFTSMEN

by Emil Kronquist

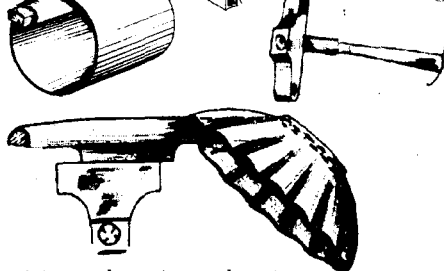
There's more to sheet metal work than air conditioning ducts, and you'll learn about it here. In this reprint of the 1942 British original you'll learn how to make pitchers, servers, trays, mail-



boxes, bowls and dishes, vases, candlesticks, and more.

There are no chapters as such. Each lefthand page contains text, and each righthand page provides illustrations.

In the first pages you get basic information such as info on tools, cutting of stock, annealing, pickling metal, shallow hollowing, shallow raising with a wedge mallet, planishing,



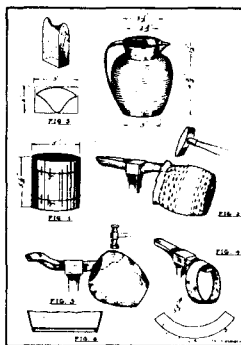
wiring, clamping, cleaning, hard and soft soldering and much more.

Then you get about fifty five projects with special details explained. The last few pages reveal brief information on a variety of finishes you can use. The photographs provided will prove that although these projects look simple, they provide a challenge. The completed project is something of which can you will be very proud.

Good book. Low cost. It should be in your library. Get one. 5 1/2 x 8 1/2 softcover 202 pages

No. 1418

\$6.95



PRACTICAL METAL PLATE WORK

by Paul N. Hasluck

reprinted by Lindsay Publications

Oh, I know what you're thinking. "Metal Plate" — quarter inch and thicker. Wrong! Very wrong! This dude was British. What he was talking about was sheet metal, and how to turn it into something a bit more exciting and, to my way of thinking, more useful than furnace duct work.

Chapters include the materials used; geometrical construction of plane figures; geometrical construction and development of solid figures; tool and appliances used; soldering and brazing; tinning, re-tinning, and galvanizing; examples of practical metal plate work; and examples of practical pattern drawing.

Remember this is same man who gave us the incredible book *Metal Working - Tools, Materials, and Processes for the Handyman* described elsewhere in this catalog. That book provides an excellent chapter on sheet metal, but this provides much more information, much more detail.

You'll see all the stakes, hammers, punches, groovers, and shears you could want. You'll also see a burring machine (or Jenny), bench standards, tube bend rollers (slip roll), a folding machine (brake), a bottom-closing machine, a paning down ma-

Metal Plate Work

Great book from Hasluck!

chine and much more.

You'll be shown how to make trays and bread pans. If you can do that successfully, you're on your way to building tools boxes of your own design. More difficult is the fabrication of a sauce pan, a ship's ventilator (air scoop), an oval bottom tea kettle and more.

Once you have completed these lessons, you should be able to fabricate almost anything.

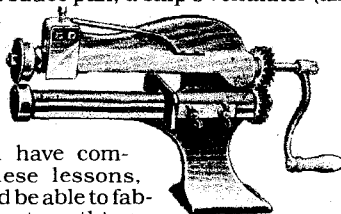
To get from flat sheet metal to a water tight three dimensional container requires a good pattern. You'll be shown all the necessary geometry to lay out the pattern without heavy theory.

This is practical how-to that was part of Hasluck's "Technical Instruction Series" of books. It's all straight-to-the-point and practical. If you work sheet metal, or plan to, this is something to have. Get a copy!

5 1/2 x 8 1/2 softcover 160 pages

No. 21591

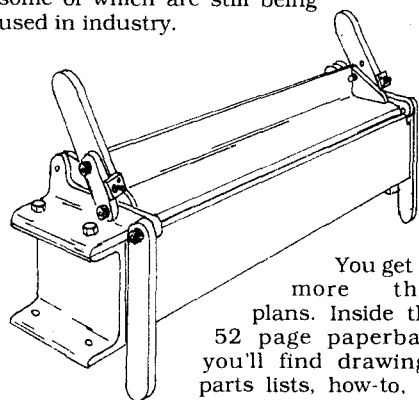
\$9.95



SHEET METAL BRAKE

by Dave Gingery

Build a brake and turn sheet metal into ducts, flashing for your house, boxes for tools and supplies — you name it. Dave told me he has built many brakes over the years some of which are still being used in industry.



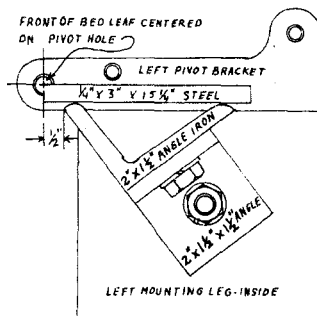
You get far more than plans. Inside this 52 page paperback you'll find drawings, parts lists, how-to, dimensions and everything you need to know about building a brake. You'll find the plans

Build Gingery's Sheet Metal Brake

scaled for an 18" wide machine, but you will also learn how people have been scaled it up to much greater widths. Dave will even show you how to use the brake to make common joints and bends. You'll need an arc welder to lay a few beads.

People have written to say "that's my kind of book." And they're right. Dave takes you by the hand and shows you construction step-by-step, pointing what is and is not important in the design of the brake. You don't often see good plans for a brake, let alone good ones. So order a copy! 52 pages 6 x 9 softcover

No. 161 \$7.95



"I built a sheet metal brake using Dave Gingery's book and am extremely happy with the results. I scaled it up to twice the size and added truss bars and a modification to the bending leaf that allows me to form right-angle ribs. I have about \$100 in it and it is far superior to the \$300 'home shop' units I have seen. They have screw-down holders for the clamping leaf, but the toggle levers on Dave's machine make any job ten times easier & faster! Thanks a million for the great books that you publish."

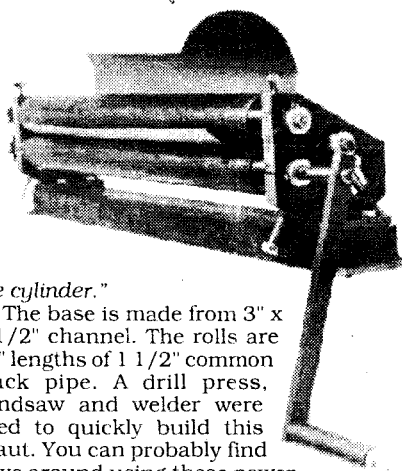
—Bernie Kuschel

Build a Slip Roll

HOW TO BUILD A SLIP ROLL MACHINE

by Vincent R Gingery

Build yourself a simple device comprised of three 1 1/2" steel rolls that will bend flat sheet metal into smooth curves to form cylinders of various diameter. Vince writes in the introduction "The two front rolls grip the sheet metal and force it against the rear roll, which forces the material up and around the top front roll curving the sheet and forming

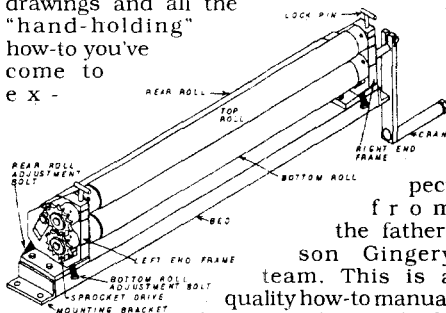


the cylinder."

The base is made from 3" x 1 1/2" channel. The rolls are 24" lengths of 1 1/2" common black pipe. A drill press, bandsaw and welder were used to quickly build this beaut. You can probably find ways around using these power tools if you have to. But there are some cuts that must be made in 3/4" plate steel that could eat up several hacksaw blades and could make one of your arms bigger than the other. A power saw sure would be nice here. Welding will make the machine absolutely solid.

Roll flat sheet metal into cylinders....

You get all the usual detailed drawings and all the "hand-holding" how-to you've come to expect -



a machine that would cost hundreds of dollars commercially.

Vince will even give you a couple of simple lessons in rolling up a straight and tapered (cone-shaped) cylinder. There's not much to learn. The machine does it all.

Great machine. Great manual. If you check out the illustrations here, and I think you'll want a copy for your library, even if only for future reference. Order a copy today! 8 1/2 x 11 stapled spine booklet 40 pages

No. 1335 \$9.95

If you have to call us, call early in the day!

Dave Gingery Works Sheet Metal!

Do amazing work with the simplest tools...

WORKING SHEET METAL

by Dave Gingery

Dave will take a hammer and a tree stump and show you how to make useful objects from sheet metal. This book is a quick lesson in basic sheet metal work as only craftsman Dave can teach it. He'll show you how to build a sturdy workbench and equip it with a simple bar clamp that will allow you to do all kind of fancy things you would have never believed possible.

Then you'll learn all the basics such as cutting sheet metal and sinking using a block made from a tree stump. Learn about joining and edging - the flat lap, pipe lap, corner lap, double corner lap, pocket seams, Pittsburgh seams, the grooved seam and more. He'll show you how to build a simple hand groover tool and a hand folder. You can do tab seams, double lock seams and more. Make a flange starting tool. Learn how to raise a flange on a disc and a cylinder. Dave will show you wire edging and other edge treatments.

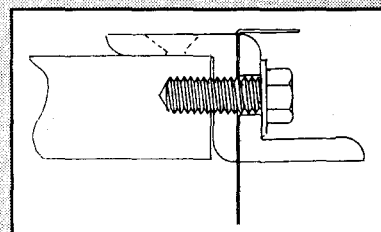
Chapter 4 reveals patterns and layout. This can be confusing until you see it, and then you never forget it. And Dave can show you how its done - simply. This stuff is important if you're going to build tool boxes, trays, flues for a blast furnace, a pitcher with a flared top, and so on. And yes, he'll show you to layout a complex transition piece from rectangular flue to a circular one.

Finally, you'll learn how to fabricate a replacement for a gas tank. He'll show you how to redesign it so as to make it as simple as possible.

This is not the be-all and end-all of sheet metal books. Dave will tell you that. But if you're as ignorant of sheet metal work as I am, this is the place to start. The price is right, and there is NO doubt that the author knows what he's talking about.

This is another Dave Gingery book. Do I need say more? Get a copy. 5 1/2 x 8 1/2 softcover 90 pages

No. 1334 \$8.95



PRESSWORKING OF METALS!

Sheet Metal Mass Production Techniques!

PRESSWORKING OF METALS

by C. W. Hinman

reprinted by Lindsay Publications

Industry found long ago that they could make more parts, faster using less metal if they stamped and formed parts out of sheet metal, whether they be the soda cans or the fenders on your car. It's all done with the equipment described in this book.

Chapters include: introduction; types of presses and their selection; stamping and forming mild steels; stamping and forming nonferrous metals; specifications for ordering sheet materials; pressworking nonmetallic materials; press accessories and attachments; chutes, magazines, hoppers, roll feeds and dials; preliminary steps in die engineering; automatic stops; blanking and cutting dies; two-step die operation; progressive dies; developing the blank and scrap strip; shaving, burnishing, broaching, and trimming; section dies and inserts; bending, forming, embossing, and folding; assembling dies;

coining, swaging, cold sizing, and extruding; drawing dies; low-cost tools for limited production; special dies and novel operations; and mathematics for press tools and presses.

This certainly is a heavily illustrated reference. You get brief, to-the-point how-to, hints and tips, and details on using a press to work metal. Think about it. A simple die and a simple press could punch out the chassis for a radio or an unusual heat engine, quickly fabricate brackets in large quantities, or maybe even punch out embossed novelties that could be painted and sold at flea markets or crafts shows.

If you're handy with metal and want to be handier (and best of all, make money doing it), this is a book to look into. I think it makes a natural companion to Woodworth's "Dies: Their Construction and Use..." Beautifully illustrated. Interesting photos and incredible number of clear, informative mechanical drawings. From 1941. Excellent. Get a copy! 5 1/2 x 8 1/2 softcover 443 pages. No. 21621 \$19.95

Dies Their Construction & Use

DIES - THEIR CONSTRUCTION AND USE

by Joseph V. Woodworth

reprinted by Lindsay Publications



being identical.

Learn how you can put dies to work in small manufacturing shops. Thirteen chapters will teach you about blanking dies, piercing dies, simple dies for use in the machine shop, gang and follow dies, use of dies for production of sheet metal parts, bending and forming dies and fixtures, perforating dies, dies for curling, wiring and seaming, drawing dies, coining processes, methods for feeding stock, hardening and tempering of dies, and more.

You get page after page of drawings and photos showing all kinds of dies for applications from turning a square of sheet metal into a tube in one hit, and punching holes, to the fabrication of those fancy old tins that held tea, tobacco, and crackers decades ago. You'll see a variety of presses - most of them in the smaller sizes.

The beauty of this 1917 volume is that you'll be taught how to make simple dies in smaller sizes for producing all kinds of things from safety pins to punching fancy leather pieces for shoes. You'll even see a compressed air drop hammer used for making sheet metal caskets!

You can learn right here how to make simple, low-cost dies in your own shop that produce items you can use yourself or sell as a sideline. Great information on a mass production tool useful to the small time operator. Very well illustrated. You'll like it. Get a copy. 5 1/2 x 8 1/2 softcover. 400 pages. No. 4309 \$15.95

THE ENGLISH WHEEL BOOK

by David L. Anderson

In his introduction the author explains his book better than I can:

"The English Wheel, sometimes called the wheeling machine, is a simple non-powered machine for forming a large radius bends in sheetmetal. It can form simple bends or compound shapes, i.e. domed or crowned panels. It was apparently developed in England at about the turn of the century..."

In my own activities as a hobbyist, I have done quite a bit of [auto] body repair and restoration. I have had my English Wheel built for most of a year now and have found it to be simple to use, effective in forming low crown panels, and much reduces the time needed to make usable patch panels. I would not begin to say that I am an expert, or that I could now construct a complete [auto] body from scratch, but I can certainly say that the machine is

English Wheel!

worth the time and effort I put into making it.

I have attempted not only to provide complete plans for four different size English Wheels, but also to provide information on how to tailor the design to permit substitutions of materials and/or to confidently build a different size machine. The design calculations are also provided to allow the reader to assure himself that the designs given will work prior to committing the time and money involved in building an English Wheel.

I have assumed that anyone far enough along in the hobby to consider having an English Wheel would already have a basic set of skills and equipment. The minimum that I have in mind are some means of cutting stock steel (cutting torch/grinder or powered metal cutting saw), arc welding equipment, and drilling/tapping capability. Optionally, a milling machine for preparing the lower wheel slide (an optional non-machined method is also given) and a lathe for preparing the wheels would be nice. Otherwise wheels can be purchased complete for the machining jobbed out to a machine shop..."

You get drawings, photos, formulas and several large sheets of plans that will allow you to build this unusual sheet metal machine. This is quite unusual! A rare machine, and rare plans. Worth having. 8 1/2 x 11 softcover 40 pages with 4 plan sheets. No. 1336 \$19.00

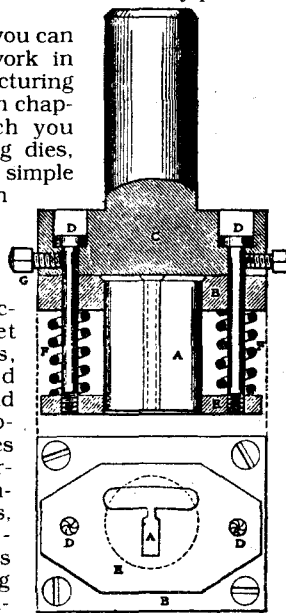
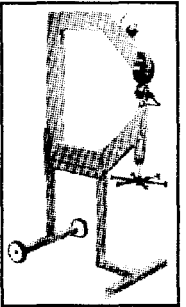
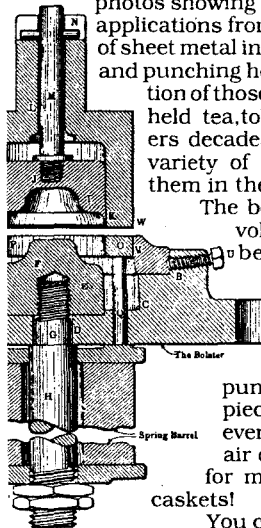


FIG. 142.—THE PUNCH.



Machinist Math!

MATHEMATICS FOR MACHINISTS

by R W Burnham

reprinted by Lindsay Publications

As a dedicated user of mathematics, I'm convinced of math's power. If you're not using math, just the simple stuff, on a regular basis, you're missing out one of the most powerful (and low cost) tools ever developed. It's very simple. Machinists learn only what they need.

Chapters include: common fractions; decimal fractions; percentage; blueprints; measurements; constructions; powers, square root, significant figures, right-angled triangle; lathe work; threads; thread cutting; planer, shaper, drill press; simple machines; work, power,

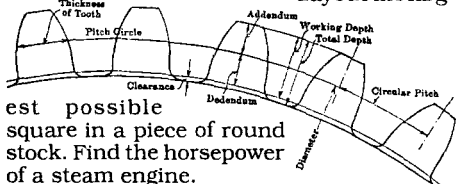
ratio and proportion, gear ratios, pulleys, belting; gear calculations; milling machine; volume and weight; shop trigonometry; materials and processes; and appendix.

You get great illustrations, B tions, simple explanations, and straight-forward problems to work with answers. I'm so familiar with math that I find it

hard to believe that some people can bisect a line with a compass. But I'm sure there are. If you're one of them, get this book and learn. It's easy and no one will ever know the difference.

This is useful. Learn to figure gears needed to cut a thread on the lathe. Learn to figure cutting speeds. Find the angle of a taper.

Layout the large-



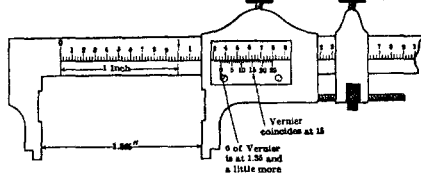
est possible square in a piece of round stock. Find the horsepower of a steam engine.

Again, this is very basic. If finding the circumference of a circle is a problem for you, get this. It will gently walk you through the most basic math you need. This is for the guy who feels completely lost in the world of math. If that's you, get a copy of this. You'll find it's a lot more than just a white cane! I think you'll find it's not a complicated as many people believe.

I think you should really know much more than what's in this book, but this is a great place to start. This excellent book first appeared in 1915, was updated and reissued in 1943, and is now in the public domain and available to us all. If you need the simplest math, I give this a very high recommendation. Think about it. 5x7 softcover 253 pages

No. 21680

\$11.95



CRASHAW'S METAL SPINNING

METAL SPINNING

by Fred Crashaw

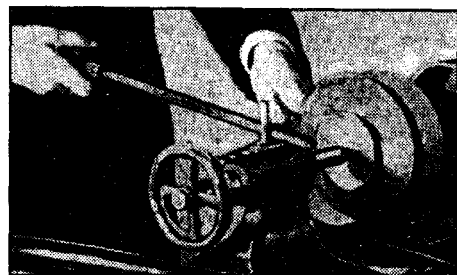
reprinted by Lindsay Publications

Mount a piece of sheet metal in your lathe and spin it into a beautiful dish, vase, candlestick, pitcher, or nose cone for a Patriot missile. You can do it!

The subtitle reads- "Practical instruction in a fascinating art."

This small book, one of the Popular Mechanics Handbooks, appeared in 1909. Chapters include the lathe and its parts, tools, the preparation of metal for spinning, how to spin a hollow dish, how to spin a deep dish, how to spin a vase, and how to spin some unclassified forms.

You'll find a good many illustrations, most of them being simple drawings of the tools and chucks you'll need. You get details on preparing brass, zinc, aluminum, copper, and white metal for spinning.



It's a small book with right-to-the-point instructions that will allow you to create decorative and functional housings for your projects, large hollow terminals for Tesla coils and Van de Graff generators, and many other objects like a bullet-shaped headlight shell for your 1938 Desoto!

Great little book at a great little price! Get one. 4 1/2 x 7 softcover 72 pages No. 20714 \$4.50

Reagan & Smith's Metal Spinning

METAL SPINNING FOR CRAFTSMEN, INSTRUCTORS, & STUDENTS

by Reagan & Smith

You can chuck a solid block of metal into a lathe and cut enough of it away to get the shape you need. You can also chuck a piece of sheet metal in the same lathe and using slightly different tools spin it into a smoothly



contoured shape that can become anything from a teapot to a missile nose cone.

In this quality book you'll learn historical facts about

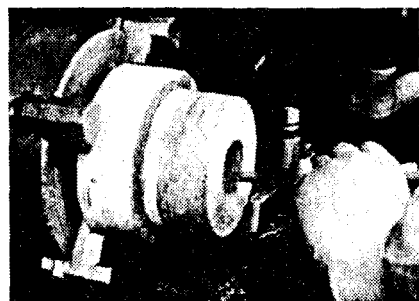
metal spinning, why people are interested in spinning, the necessary mechanical setups, spinning tools, chucks for spinning, the treatment of different metals, lubricants to be used, the actual process of spinning, and educational as well as useful projects.

There are plenty of shop courses around that will teach you how to turn a bronze

bushing. But have you seen any instruction offered on turning a sheet of copper into a beautiful vase or candlestick?

You'll enjoy this 1936 technical school textbook. It's simply written, loaded with valuable illustrations, and gets right to task of teaching you spinning. Master this skill. It's not all that hard, but very few people, including expert metal workers, know how to spin. You can learn how with this book and some elbow grease. Excellent book on a rarely taught skill. Order a copy!

5 1/2 x 8 1/2 softcover 80 pages No. 4830 \$9.95



Mach Reference Series's Metal Spinning

Machinery Reference Series No. 57

METAL SPINNING

reprinted by

Lindsay Publications

Here's a great little 1910 booklet from the publishers of Machinery magazine that will introduce you to metal spinning. You'll be shown the tools, chucks, and forms, you'll need and how to use them to create a nose cone for that rocket you're building to send your mother-in-law to the moon. Well... The truth is you'll see a zinc lamp shade spun in one operation, a German silver reflector for a light, copper and aluminum forms that look like spittoons, and more.

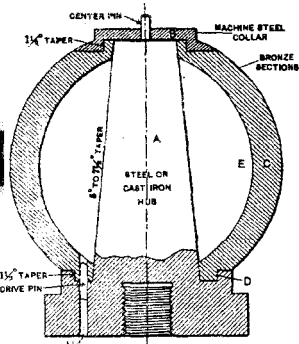
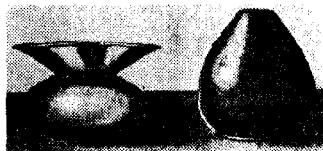
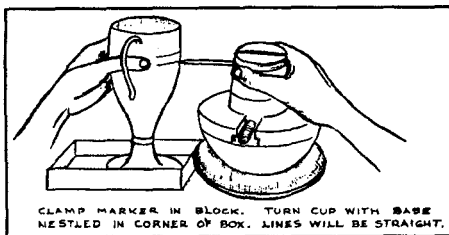


Fig. 31. Elevation and Plan showing Construction of Sectional Chuck

This is a great introduction into converting sheet metal into beautiful and useful three dimensional forms. This is a skill to have. Order a copy. The price is right. 5 1/2 x 8 1/2 booklet 38 pages

No. 21370

\$3.95

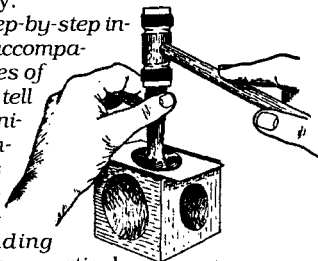


THE JEWELRY ENGRAVERS MANUAL

by Hardy & Bowman

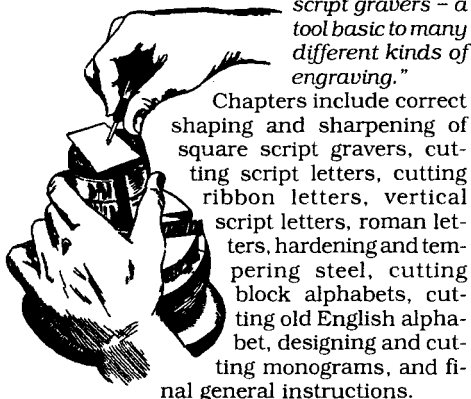
You get a reprint of the 1954 original book teaching the art of engraving letters into metal jewelry.

"Clear step-by-step instructions, accompanied by scores of illustrations, tell how to cut initials and inscriptions using a variety of alphabets, including script, ribbon, vertical script and Roman letters, as well as block and Old English. You'll also learn how to



Engrave Jewelry!

design and cut initials in monograms, what forms to use properly decorating and embellishing engraved work, and how to correctly shape and maintain tools, particularly square



Great low-cost book teaching one aspect of engraving. Well illustrated. Get one. 5 1/2 x 8 1/2 softcover 160 pp No. 1352 \$6.95

THE ART OF ENGRAVING

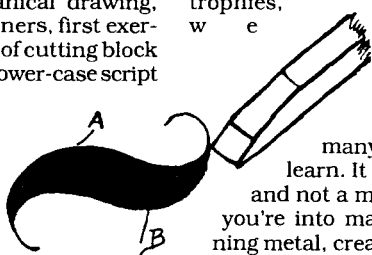
reprinted by Lindsay Publications

Originally copyrighted in 1903 by the owner of *The Keystone*, a magazine published for the jewelry and optical trade in Philadelphia, this unusual book teaches beginners how to get started using gravers to cut beautiful designs and letters into metal.

Chapters include mechanical drawing, tools and materials for beginners, first exercises, block letters, methods of cutting block letters, script letters, cutting lower-case script letters, the formation of script capitals, looped script, practical use of script letters, engraving coffin plates, engraving thimbles and inside of rings, engraving inscriptions in script, method of cutting Old English, shaded Old English, engraving spoon handles, designing and engraving ciphers, flower leaf ciphers and more!

You'll learn about gravers and their care,

The Art of Engraving!



engraving tables, engraving script in metal, ivory, and even pearl. The illustrations you find are mostly concerning letters, their style and the method in which they should be cut. What you learn here are the secrets that went into engraving so many of the fantastic trophies, jewelry, and trinkets that find in museums and antique stores (at big prices!). It was all done by hand.

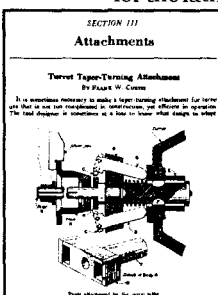
This is a technique that many people are still trying to learn. It is definitely an art, a skill, and not a machine shop technique. If you're into making knives, guns, spinning metal, creating jewelry or any type of decorative art, this is a rare book worth having. Get yourself a copy and put it in your reference library today! 5 1/2 x 8 1/2 softcover 199 pages No. 20617 \$10.95

COST-CUTTING SHOP KINKS 1927

by American Machinist Magazine reprinted by Lindsay Publications

From out of 1927 comes an interesting little book with five sections: dies & press tools, toolholders, attachments, work-holding devices, gages, safety devices and small tools. You probably won't be able to use but a few of the devices shown. But even the ones you don't use will entertain you and (if you read these books for the right reasons) will generate valuable ideas.

Some of the topics include a unique method of indexing unusual numbers, a pull-head for a broaching machine, a full-floating reamer holder, quick-action toolpost and tools for the engine lathe, longitudinal stops



No. 20820

1927 Shop Kinks

for the lathe carriage, toolpost grinder for the bench lathe, boring spherical seats, boring fixture for a gear box, a quick-acting expansion mandrel, fixture for mill helical grooves, tool for reseating pop valves, tools for making cork washers, and much more.

These are articles reprinted from *American Machinist* magazine, and each is illustrated. You get other machinists solutions to common and not-so-common problems. Fun reading. Great ideas. I think you'll like it. Get a copy. 5 1/2 x 8 1/2 softcover 186 pages \$9.95

ENAMELS, ENAMELING, ENAMELISTS

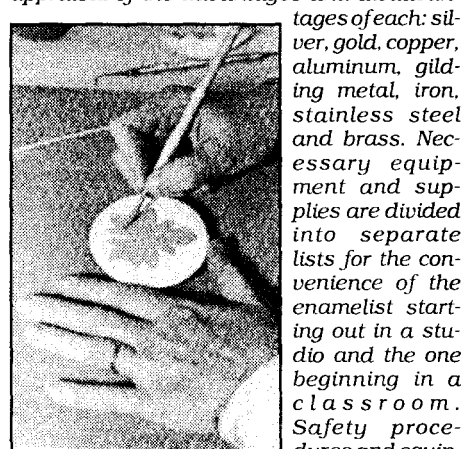
by G L Matthews

Consider enameling in addition to engraving as a way to decorate your metal creations. Enamel is colored glass fused to the metal. And here's a book aimed at the artistic crowd. This might be something you can use to set your creations apart from the crowd.

ENAMEL!

You get "...in-depth information on enamels; how they are made; classification, forms, and chemical properties; firing characteristics and maturation temperatures; and how to buy, prepare and use enamels..."

The section on enameling talks about processes. "The preparation of metals for enameling is accompanied by a thorough appraisal of the advantages and disadvantages of each: silver, gold, copper, aluminum, gilding metal, iron, stainless steel and brass. Necessary equipment and supplies are divided into separate lists for the convenience of the enamelist starting out in a studio and the one beginning in a classroom. Safety procedures and equipment for working with acids and kilns are carefully detailed.



Six illustrated projects explicate the step-by-step procedures for sgraffito and stencils, wet packing, designing with threads and blobs, Limoges painting, rendering with ceramic pencils, and cloisonne.

A chapter on troubleshooting describes potential defects and solutions, enabling the enamelist to learn from and possibly to rectify any mistakes."

Then you'll see the work of about a hundred artists in the last section.

This is a craft. Enamel is used to decorate panels much like oil painting on canvas. There is no discussion on enameling other parts. Three dimensional articles may be impossible due to molten glass running. But perhaps you can adapt techniques taught to decorate the flat surfaces of your project along with engraving. Think. Use your head. What applications can you devise for the unusual and beautiful technique?

Expensive book, but this is unusual material. Great ideas. Consider it. 7 x 9 1/2 hardcover 177 pages No. 1412 \$29.95



Turn Tin Cans into Art?? What would Spike Jones Think?

THE FINE ART OF THE TIN CAN

Techniques and Inspirations

by Bobby Hansson

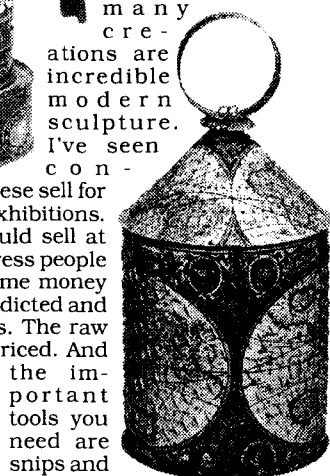
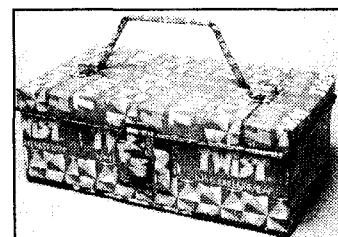
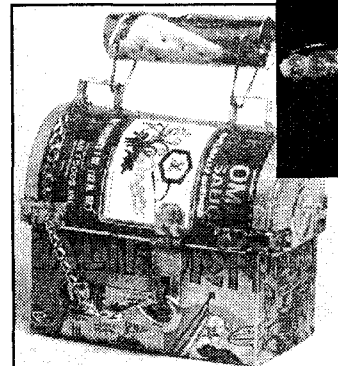
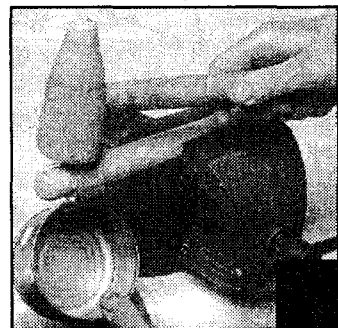
"...professional metalworkers, inspired artists, and complete novices transform humble tin cans into hundreds of fun, functional and classic, and quirky objects, including •toys from tanks to trucks and whistles •musical instruments, among them a Canjo, Folgerphone, and Field Hockey Schtick •brooches, pins, earrings •sculpture and mobiles •candleholders, kitchenware and more..."

Turn tin cans into campy art. Some of this I would be embarrassed to show people. But

many creations are incredible modern sculpture. I've seen

structions not nearly as good as these sell for thousands at international art exhibitions. This might be an artform you could sell at crafts shows or flea markets. (Impress people with your ingenuity and make some money doing it...) Or you just might get addicted and fill your house with can creations. The raw material certainly is reasonably priced. And

the important tools you need are snips and a soldering iron. But I can also tell you from experience that a pair of leather gloves is highly advisable to avoid being punctured by sharp metal slivers during fabrication.



Loaded with ideas, photographs (many in full color). Great craft. Campy. Attractive folkart. A fun book to look through. A book for someone who wants to try something different. Get a copy. 8 1/2 x 10 softcover 144 pages

No. 1406

\$21.95



Graduating Engraving and Etching!

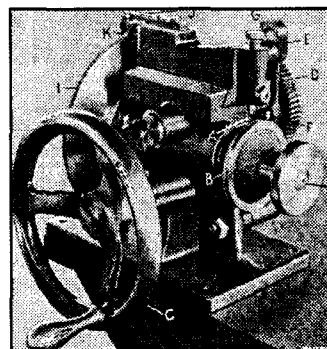
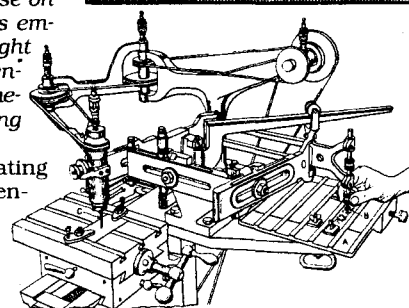
GRADUATING ENGRAVING AND ETCHING

Machinery's Blue Books
reprinted by Lindsay Publications

Ever wonder how the lines are engraved in steel rules? "No?" Whaddaya mean "No?" Your answer should be yes. And you should have a copy of this. Here, the secrets of engraving, at least those of 1921, are revealed.

The subtitle is "a treatise on the machines and methods employed for graduating straight and circular scales and engraving various forms of nameplates, by etching and cutting processes."

Chapters include graduating machines and their use, engraving machines and methods and etching and etching fluids. Within these chapters you'll see power-driven linear engraving engines, circular engines, a circular graduating machine used to put scales on astronomical instruments, machines that graduate numerous rules simultaneously, graduating with a pantograph and even a fixture for graduating in a milling machine.

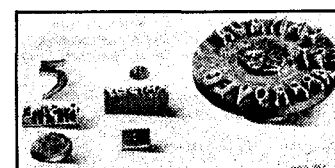
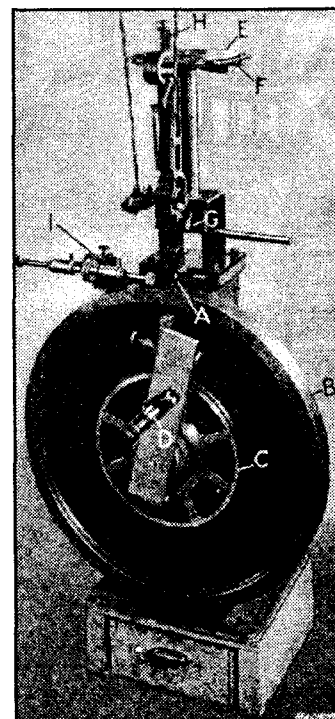


You'll see machines (cross-section drawings included) that engrave with a tiny precision router mounted on a pantograph. And you'll see the products of their work: dies for date stamps, radio dials, and more.

This is a small, informative booklet that is loaded with fascinating info. Imagine how much more professional your machines could be if they sported professionally graduated scales? And not surprisingly, variations of the techniques revealed were used to cut the dies used to cast the type with which the original booklet was printed!

Small, well illustrated, low cost. So get a copy. (And I won't take NO for answer.)

5 1/2 x 8 1/2 softcover 60 pages
No. 21788 \$5.95



Layout and Floor Work

Layout, Drilling, Tapping, Chipping, Babbitting & More!

LAYOUT AND FLOOR WORK

by J. W. Barritt

reprinted by Lindsay Publications

More great how-to just like "Lathe Operations" and "Shaper Operations".

Here, you get lessons for laying out work for the horizontal boring mill, the slotter, the shaper, the planer, and the drill press.

In the next section you get miscellaneous machine shop skills, some of which are quite useful and others probably won't be for the home shop. You get floor work with rope hitches, ladders, scaffolding, and blocking. You get lessons in basic drilling, tapping, driving studs, and chipping. Then you get several lessons entitled Babbitting solid bearings in place, Babbitting split bearings in place, Babbitting on a mandrel, pressing a gear on to a shaft, fitting keys, fitting large bearings, fitting crank brasses, and assembling a large centrifugal pump.

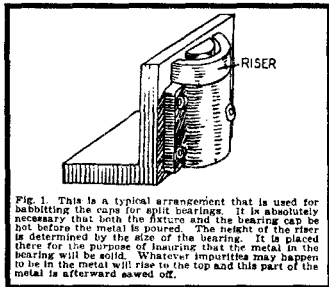


Fig. 1. This is a typical arrangement that is used for babbitt casting. It is absolutely necessary that both the fixture and the bearing cap be hot before the metal is poured. The height of the riser is determined by the size of the bearing. It is placed there for the purpose of insuring that the metal in the bearing will be solid. Whatever impurities may happen to be in the metal will rise to the top and this part of the metal is afterward sawed off.

Each lesson is well illustrated and described with detailed step-by-step how-to. Layout is an essential skill. And the Babbitting info is excellent and hard-to-find. Either section make this inexpensive book worth having. Order one. From 1937.

8 1/2 x 11 softcover 59 pages \$8.95

No. 21508

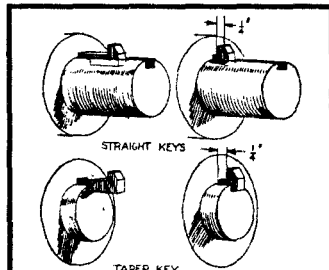
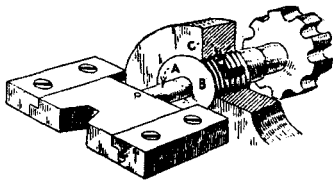


Fig. 2. Keys must be fitted correctly as otherwise they will cause trouble when in operation. A key is subjected to severe service and must therefore fit the key-way in both the shaft and the bore.



JIGS & FIXTURES

JIGS AND FIXTURES

by Colvin & Haas

reprinted by Lindsay Publications

Jigs and fixtures are useful in mass production even for the "basement factory."

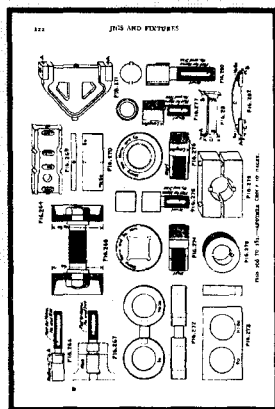
Chapters include: system in the tool room, the different kinds of jigs, locating schemes for drill jigs, standard bushing for drill jigs, some of the details of jig making, miscellaneous jig details, jig clamps and clamping methods, milling fixtures of various types, pneumatic fixtures for holding work, uses and advantages of the latch jig, designs of and materials for gages, external and internal thread gages, miscellaneous manufacturing gages, the designing of machine vise jaws, and construction and uses of mandrels.

You'll learn ways of making removable slip bushings, ways to prevent small bushings from turning (something often overlooked), types of angle plates, adjustable stops, design ideas for clamps to prevent machining mistakes, and on and on. The vast majority of this gear is aimed at small machine tools, not industrial monsters. Everything is well illustrated.

You get great practical details, hints and tips. Worth having if you take machine fabrication seriously. Useful. Entertaining. Get a copy. 5 1/2 x 8 1/2 softcover 168 pages

No. 21273

\$9.95



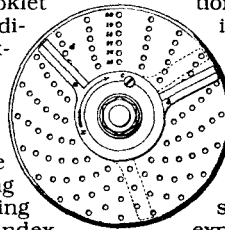
INDEXING

reprinted by Lindsay Publications

Most of this booklet from 1903 covers indirect compound indexing.

You'll learn about construction of the indexing mechanism, calculating runs of the index crank, selecting the index circle, using the sector, using index tables, calculating the moves for compound indexing, and simplifying the moves.

The second section covers the use of the spiral head which at that time was an innovation marketed by Brown & Sharpe.



A final section covers fractional indexing using two indexing plates and special spiral head. Three more pages of indexing tables are provided.

Some of the information should be quite useful to you. Some will not, but even so, what you learn should expand your knowledge to allow you to make more creative use of the dividing head you do have. Loaded with valuable info! Reasonably priced! Get a copy today 5 1/2 x 8 1/2 booklet 31 pages

No. 869

\$4.00

Secrets of HAND SCRAPING

OLD TIME MECHANICS

reprinted by Lindsay Publications

Back in the 1700's when you opened a machine shop, you didn't run out and buy a lathe and planer, you built them! Scraping was the skill necessary to produce absolutely flat and true beds and tightly fitting bearings. It was a skill that every mechanic learned, yet today few people have even heard of it.

Scraping is used on the machines described in the Gingery series of books. Scraping is also the secret method used by Whitworth to produce large surface plates accurate to millionths of inch two centuries ago! It is a very valuable skill. The first half of this booklet deals with the surface plate and scraping.

Also reprinted are instructions for lapping, grinding valves and joints, making shrink fits and force fits, and for balancing pulleys, cutter-heads, and emery-wheels.

Get a copy! Learn about these old-time skills. This information is fast becoming lost technology. 5 1/2 x 8 1/2 booklet 15 pages

No. 855

\$3.00



COPPER WORK

by Augustus F. Rose

reprinted by Lindsay Publications

A 1908 manual for high school students. Some of the projects are very simple, but others are challenging. You'll learn what types of saws, hammers, and anvils to use. You'll learn how to make simple objects such as hinges and finger pulls, and then you'll graduate to box corners.

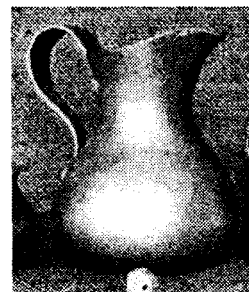
The fun starts when you anneal a sheet of copper and start working it on an anvil to produce a pitcher, porringer, bowl, ink pot, or a spoon. You'll learn how to make rivets, draw wire and small tubing, polish, make a stamp out of tool steel, and even some simple enameling.

This book is designed for young people who are to be as-

Work Copper!

sisted by a teacher. The instructions are therefore brief, maybe even too brief, and the illustrations numerous. But I expect

that you have at least a little mechanical ability, so you shouldn't need extremely detailed instructions anyway. Many pages are covered entirely with photos and/or drawings to instruct and inspire.



I won't tell you this is the greatest book ever writ-

ten, but it is a lot of book for a modest price. It's just for the fun of it. Or perhaps you can turn out a product to sell at arts & crafts shows. No matter what your angle, I think you'll like this. Order a copy. 5 1/2 x 8 1/2 softcover 123 pages

No. 20145

\$7.95

Hasluck's METALWORKING

Tools, Materials, & Processes

by Paul N. Hasluck

reprinted by Lindsay Publications Inc

Every metal worker must have a copy this. This is top rate. Full tilt. I've never seen anything quite like it. This 1907 American edition of "Metalworking" has 760 pages and 2,206 illustrations covering just about anything you would want to do to a chunk of metal.

This covers so much I don't know where to begin. Under "foundry" you'll learn about building Faraday's blast furnace, a gas injector furnace, a brick-built furnace, an oil furnace, crucibles, flasks, sands and on and on.

"Smiths' Work" is not about the farrier's trade, but about decorative iron work - making beautiful iron flowers, gates, plant stands, fireplace fire-dogs, brass fire screens, fireplace fenders, and a score of other Victorian blacksmithing projects. You get descriptions of the tools and anvil, of course, but you'll also find an interesting bending jig. The smithing chapter alone has 274 illustrations!

And on it goes: files, scrapers, buffing wheels, annealing furnaces, hardening and tempering equipment, drills, boring bars, and much more. You'll learn about the torches, bellows, furnaces, hearths for brazing and riveting.

The chapter on forging is more what we consider blacksmithing today: the basics of manipulating iron by heating and hammering.

The sheet metal chapter is a gem. With 177 illustrations you'll learn to make everything EXCEPT ventilation ducts. You make a small oil cook stove with oven, a deed case, a "coal vase" (decorative coal scuttle), a sizeable traveler's trunk, a drainer, a square copper tea kettle, and much more. Incredible!

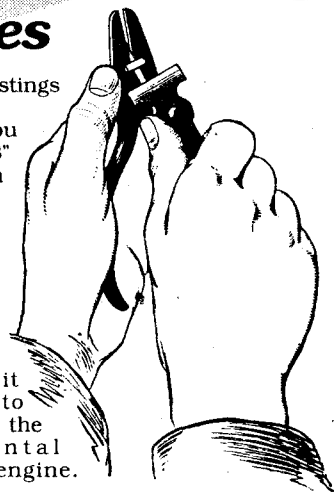
Once you've spent a life time learning all of this, you can begin

don't know where you'll get the castings unless you make them yourself.

After you make some jewelry, you can make a simple eight day, 18" high skeleton clock. Its mechanism includes a pendulum and fusee. The plans are not dimensioned and discussion is necessarily brief. But there IS enough for a clock fanatic.

Fortunately there is much

more detail when it comes to building the horizontal steam engine.



1907 Classic How-to

With a 2" bore and 4 1/2" stroke at 50 psi, you're should get 1/4 hp off the 16" fly-wheel. Great stuff!

The vertical steam engine can be built on a 3 1/2" backgeared lathe, and generates 1/4 hp at 60 psi, 300 rpm and a cut-off at 5/8 of the stroke. The 1 1/2" diameter piston travels 2 1/4" on each stroke. You get loads of dimensioned drawings. And this is a governed engine, too.

Build three different boilers. You can build a model horizontal boiler 13" long and 7" in diameter. Or fabricate a small vertical boiler 24" tall and 12" in diameter that can generate 1/4 hp of steam. I don't want to be around when you decide to build the 8 hp boiler that stands 8' tall with 4' stack on top of that. This mother is 3 1/2" in diameter, is riveted, and looks like more than I would ever want to tackle.

Build a gas engine with a 2 1/2" piston and 2 1/2" stroke. This 1 1/2 hp air-cooled engine weighs about 25 lb and is suggested for use on a bicycle.

The 18" diameter water wheel will develop 1/4 hp at 30 psi and as much as 3/4 hp at 90 psi.

The dynamo/motor will generate or consume 50 watts of power. You'll find talk about silver, copper, and gold plating and brass gilding in the electroplating chapter. The wire working chapter is incredible in that you will learn how to make fancy wire screening of different lattices that we, today, think can only be made by machine. After you make the electric bell, you can make a brass stand microscope, and a four-draw telescope with an erector for terrestrial

DAVE GINGERY WRITES:

Metalworking is nothing short of a dream-come-true for anyone beginning to put together a home shop...

I thought the Foundry Work section lacking in some details of practice and procedures. But the discussions of various types of furnaces makes up for any lack elsewhere. Wish I had seen this section when I was putting my foundry together years ago...

Naturally I appreciate the section on lathes and lathe work. And the chapter on building a lathe is by itself worth the price of the book. So also the details on tooling, attachments and accessories...

Every shop bird should order a copy of this one. And if he's dumb enough to lend books, he should order two or more copies because few people would return this one...

viewing (a "must-have" for all would-be pirates...).

Again, anyone who works metal must have a copy of this. The ideas in here will fire you up. You'll really like this. Top rate. I can't say enough about this one. Get a copy. 6x9 hardcover 760 pages 2,206 illustrations No. 21265

\$29.95

CONTENTS:

- foundry work • smiths' work • surfacing metals • polishing metals: the machines and processes • annealing, hardening, and tempering • drilling and boring • taps, screwplates, and dies • soldering brazing and riveting • forging iron and steel • working sheet metal • repousse work • oriental decorative brasswork • finishing, lacquering, and coloring brass • lathes and lathe work • spinning metals on the lathe • tools for measuring and testing metalwork • building a 4 1/2 in. centre lathe • gilding and silver working • making a skeleton clock • building a small horizontal steam engine • making a 1/4-hp vertical steam engine • boiler making • building a petrol motor • making water motors • building a dynamo and electric motor • electroplating • wire working • electric bell making • making a microscope and telescope.

repousse: the decorative embossing of sheet metal. You can make decorative picture frames, lock plates, canopies for fireplaces, and more.

You get brass work, discussions of lathes and their tools and use (237 illustrations here alone!), metal spinning techniques and projects, tool construction, and on and on.

You'll be shown how to build the treadle-driven 4 1/2" lathe with a 4' 6" bed complete with headstock, tailstock and slide rest. This chapter could be a book in itself, and I

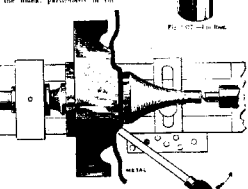
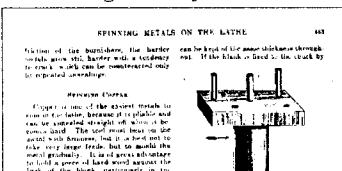


Fig. 101—Spinning Lathe.

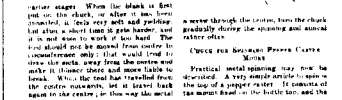


Fig. 102—Spinning Lathe.

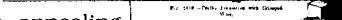


Fig. 103—Spinning Lathe.

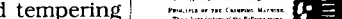


Fig. 104—Spinning Lathe.

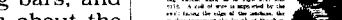


Fig. 105—Spinning Lathe.



Fig. 106—Spinning Lathe.



Fig. 107—Spinning Lathe.



Fig. 108—Spinning Lathe.



Fig. 109—Spinning Lathe.



Fig. 110—Spinning Lathe.



Fig. 111—Spinning Lathe.

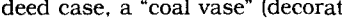


Fig. 112—Spinning Lathe.



Fig. 113—Spinning Lathe.

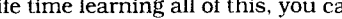


Fig. 114—Spinning Lathe.



Fig. 115—Spinning Lathe.



Fig. 116—Spinning Lathe.



Fig. 117—Spinning Lathe.

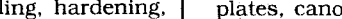


Fig. 118—Spinning Lathe.

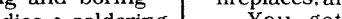


Fig. 119—Spinning Lathe.



Fig. 120—Spinning Lathe.



Fig. 121—Spinning Lathe.



Fig. 122—Spinning Lathe.



Fig. 123—Spinning Lathe.



Fig. 124—Spinning Lathe.

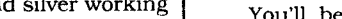


Fig. 125—Spinning Lathe.

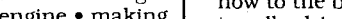


Fig. 126—Spinning Lathe.

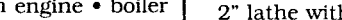


Fig. 127—Spinning Lathe.



Fig. 128—Spinning Lathe.



Fig. 129—Spinning Lathe.



Fig. 130—Spinning Lathe.

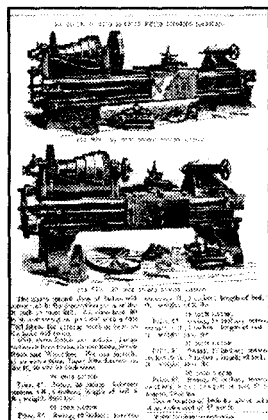
1895 TOOL CATALOG
by Chas. A. Strelinger & Co.
reprinted by Lindsay Publications

Here is by far most interesting tool catalog I've ever seen! With wall-to-wall engravings you'll see every tool a 1895 machinist could possibly want, from calipers and rules to lathes, milling machines, drill presses, steam engines, boilers, and even fire trucks!

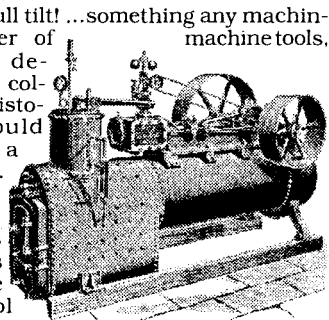
Strelinger 1895 Tool Catalog

You get well over 500 pages of "A Book of Tools, being a catalogue of tools, supplies, machinery and similar goods used by machinists, engineers, blacksmiths, model makers, founders, moulders, draughtsmen, inventors, and amateurs, and manufactories, mills, mines, etc., etc. Chas. A. Strelinger & Co., manufacturers and dealers, Detroit, Michigan, U.S.A."

Whaddaya lookin' for? A four-jaw chuck? A surface plate? No problem! Back then you could order an open back single-acting punch press, a 16" engine lathe with plain gib rest and taper attachment, a 6" B&P Shaper, a Snyder drill press, a Brown & Sharpe surface grinder, Roger's saw filer and gummer, locomotive oilers, a 19 hp 7x8 Climax horizontal steam engine, an H&H 8 hp portable steam engine and boiler, a Springfield gas engine, and even a horse-drawn fire truck! You'll find lots of engines, safety valves, indicators, steam pumps, clutches, pulleys, flywheels, even telephones, clocks, gauges (ammonia, compressed air, etc), spinning lathes, packaging machinery, and much, much more.



This is full tilt! ...something any machinist, restorer of machine tools, machine designer, tool collector, or historian should have. Get a copy of this. Yes, it's expensive, but it's worth it. It's one of the best tool catalogs I've ever seen. Recommended. Order a copy. 6x9 sewn softcover about 560 pages heavily illustrated. No. 20692



\$19.95



Basic Techniques for WORKING WITH STEEL

BASIC TECHNIQUES FOR WORKING WITH STEEL
by Ron Covell

Ron Covell speaks softly, carries a big hammer, and makes a helluva noise pounding sheets of 20 gauge steel. You'll watch as he plugs large and small holes, replaces a major panel, and fabricates a tailpiece for a 1932 JAP Arrow Morgan he's restoring.

Sure you can use plastic filler, overlap joints, and weld to make repairs, but Covell will show you the high art of working sheet metal into beautiful curves that melt seamlessly into the original body panels, having used a hammer and dolly, a welder, and other tools to do it.

You'll watch as he enlarges a hole, hammers the patch to expand it, tack weld it in place, and then complete the weld. Then he'll grind down the high spots, file to reveal high and low areas, and then remove them with a hammer and dolly.

The Morgan originally had a rounded bullet shaped tail piece now missing. He'll show you how to approximate curves with welding rod, make a pattern and cut the blank from sheet metal. After initial hammering on a sand bag with a plastic hammer, the panel looks terrible, like a "bag full of walnuts." Give him a few minutes with a shrinking machine, the sand bag, and a hammer and dolly and he has a beautifully curved panel. Amazing.

You'll watch him cut out a large damaged side panel, fabricate an exact replacement, weld it into place, and replace the wire edging at the bottom. Next he'll weld and finish the tail piece into place.

This guy is an artist who produces sculpture. He'll show you the basics of off- and on-dolly hammering, using a torch to shrink metal, how to straighten dents, and more. He'll tell you that properly done metal work doesn't need filler. After seeing this, I believe him.

I really enjoyed this tape, and I think you will, too. Get one. VHS tape NTSC format only 110 minutes

No. 1388

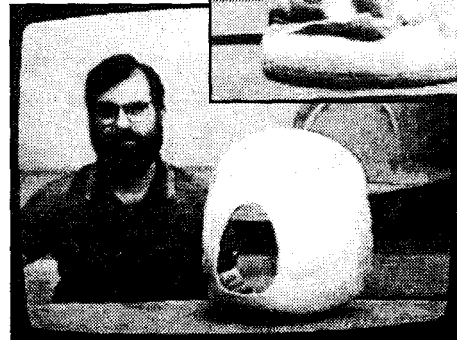
\$39.95

SHAPING ALUMINUM with Hand Tools

SHAPING ALUMINUM WITH HAND TOOLS
by Ron Covell

You must see this craftsman take a sheet of 3003 H14 aluminum and cover it with a layer of carbon from a pure acetylene flame, and then come back with a normal flame to burn it off and anneal the metal. Next you'll watch him form it into a beautifully shaped nose cone for a half midget race car body he's building from scratch. It's hard to believe that the whole process can be done with simple tools!

He will show you how the "buck" or three dimensional pattern for the body is used to test and form the aluminum sections. He will show how a hardware store wooden mal-



let along with a sand bag and two-by-four can produce an incredible accurate body panel. Next, he'll reduce the remaining imperfections with a hammer and dolly.

Once panels are formed, they are tack welded. Covell will show you first, how an oxy-acetylene torch can be used, and later a TIG welder. More hammer and dolly work will reduce the weld bead, smooth the transition curves and remove imperfections. A little work with a vixen file will produce a body section that's ready for paint without any body filler.

Covell has been in the body work business for 25 years now and has built aluminum bodies for dragsters and funny cars. Now he specializes in custom cars. He built "California Star" which won top awards at the 1984 Oakland Roadster Show. A '29 Roadster he built for a customer did the same at the '92 show. Covell is a sculptor in metal. He knows what he's doing, to say the least...

When I pound a piece metal like he does, it ends up looking like a bicycle run over by a Sherman tank. Covell has shown me not to stop there. If I keep at it and keep moving the metal in the right directions, I can produce three dimension sheet metal objects of incredible beauty. You can do the same. Learn from a master. Fascinating tape. Get a copy and get going! VHS tape NTSC only

No. 1389

\$39.95

REETZ'S "ELECTROPLATING"

ELECTROPLATING

by Henry C. Reetz

reprinted by Lindsay Publications Inc

Try electroplating! It's a useful addition to your shop skills. Here's a simple, inexpensive, well-illustrated little book that will show you exactly what you need to know to get started.

Originally published by Popular Mechanics magazine in 1911, Electroplating is brief, easy-to-read, and useful. You can be sure about that. About the only information that is really dated concerns power supplies.

Chapters include introduction, electrical equipment, shop equipment, cleaning goods before plating, copperplating, nickelplating, silverplating, goldplating, miscellaneous, first aid, and business suggestions.

You'll learn how to clean parts, polish them, mix up solutions, make tanks, and all the essentials to get going. This could very well be an easy way to try plating. If you enjoy it, then you can launch into "heavier" texts loaded with chemistry and industrial secrets.

A great little book. Worth having. Order a copy. 5 1/2 x 8 1/2 softcover back 99 pages
No. 20080

\$7.95

PLATERS' GUIDEBOOK

1936 How-To for Professional Platers!

PLATERS' GUIDEBOOK 1936

by Chamberlain & Hogaboom

published by METAL INDUSTRY

& ELECTROPLATERS' REVIEW

reprinted by Lindsay Publications.

This small industrial handbook tried to help the professional to survive the Great Depression and provide quality to his customers.

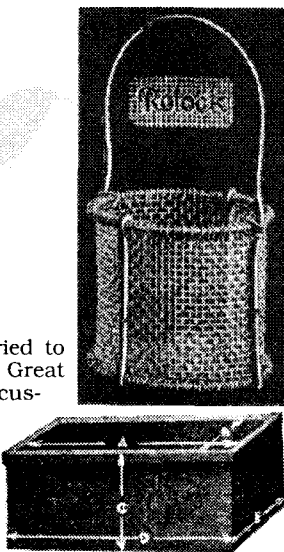
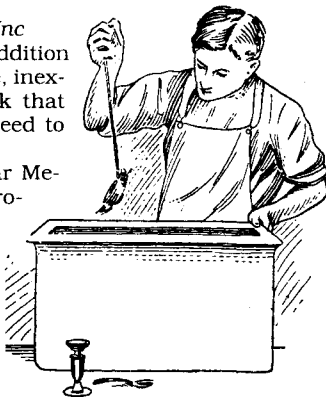
You get 68 core pages of how-to information surrounded by advertising aimed at the plating trade. Contents include: polishing, buffing and coloring; abrasive rolling and ball burnishing; solvent and vapor degreasing; metal cleaning; solutions for plating; tanks; stripping solutions; metal coloring; saw dust tumbling; specifications for plated coatings; electrolytic deposit tables; replenishing the metal content of cyanide baths; methods of analysis of plating solutions; and a list of chemicals and their equivalent names.

You get lists of abrasives commonly used on different metals, how to clean metals electrolytically, with alkali, and how to pickle. You get plating bath formulas for brass, bronze, cadmium, copper, chrome, nickel, gold, silver and more. Some of these formulas were at the time protected by patents. You get formulas for baths that will color metals, for instance, turn brass blue-black. You get instructions on how to anodize aluminum using chromic acid. You get detailed instruction on how-to check the health of your plating baths. And there's much more.

Surrounding the how-to pages are ads for buffing wheels, plating barrels, filters, proprietary plating baths, motor-generators, dipping baskets and more. Don't expect these suppliers to still be in business.

This is a great little book with practical info aimed at the professional. The chemicals used here are potentially dangerous. Electroplating is not something you're going to do in a spare bedroom or out of the trunk of your car. Excellent little book!. Practical info! Trade "secrets". Get a copy! 5 1/2 x 8 1/2 softcover 128 pages
No. 21451

\$7.95



BEND IRON!

Another Hasluck Handbook!

BENT IRON WORK

by Paul N. Hasluck

reprinted by Lindsay Publications Inc

This appeared in 1903 - four years before Hasluck's "Metal Working" described elsewhere in this catalog (something you should have). Some of this material is included in "Metal Working", but you get much more here.

Consider this light blacksmithing. You don't need heat, but you do need a bench anvil, hammers, pliers, and other

sturdy tools to turn iron strap into fancy lamp brackets, vase stands, candlestick brackets, unusual picture frames, fancy grills, fire screens for your fireplace and much more. Fastening is done with simple clamps and rivets.

Chapters include tools and materials; bending and working strip iron; simple exercises in bent iron; floral ornaments for bent iron work; candlesticks; hall lanterns; screens, grilles, etc;

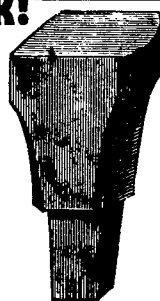


Fig. 7.—Bench Anvil.

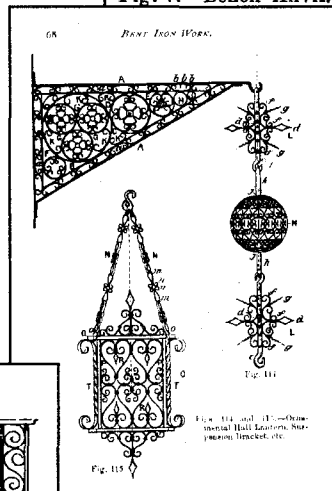


Fig. 146.—Grille at Chichester Cathedral.

table lamps; suspended lamps and flower bowls; photograph frames; newspaper rack; floor lamps; and miscellaneous examples.

Although this was published in Philadelphia, Hasluck was a Brit, and the projects he shows are British in design. You'll see drawings of grills and screens from Winchester and Chichester Cathedrals, and Westminster Ab-

beys. You might want to copy them. Classic, beautiful stuff.

You might grab a camera and visit historic homes or museums to collect American designs. Maybe you could duplicate those designs and sell them as replicas to make a few bucks to finance your hobby. It's an idea.

Small book. We enlarged it somewhat to fill the page, and so we old codgers can read it more easily. Loaded with great how-to. I've got a copy here waiting for you. 5 1/2 x 8 1/2 softcover 160 pages
No. 21842

\$9.95

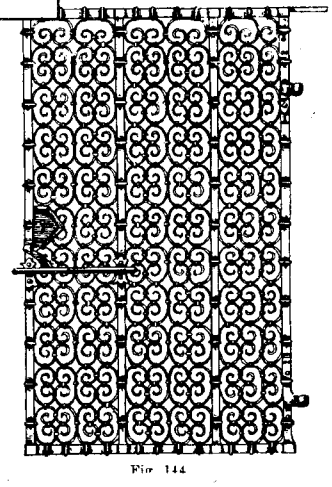


Fig. 144

BUILD A METAL CUTTING BANDSAW

How to Build a METAL CUTTING BANDSAW

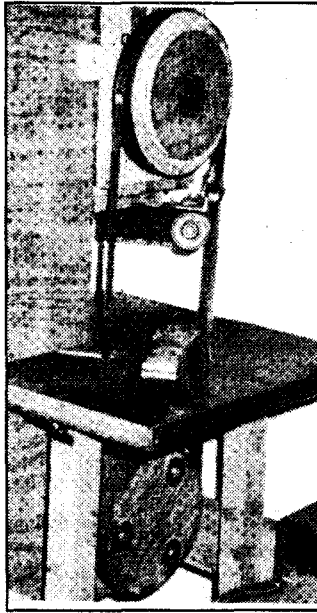
by David Wimberley

Build a bandsaw powerful and sturdy enough to cut metal to precise dimensions. A good bandsaw can simplify many metal projects, and often make otherwise impossible projects feasible.

Wimberley will show you how to build this saw out of wood. It works amazingly well. Detailed plans will show you every step from making and truing the wheels to building the frame. You need no unusual tools. For instance, he'll show you how to turn the wheels and crown them without the use of a lathe.

This machine has 7 1/2" wheels which move a 1/2" blade. Ball bearing blade guides twist the blade as it passes through the table allowing you to make extra long cuts. Although the throat is not adjustable because of the twisted blade, the saw can cut heavy material beautifully. The table does not tilt. Dozens of detailed drawings show you all the tricks of building every part of the saw from motor drive mechanism to wheel tilt and tensioning equipment.

Get a copy of this. Great how-to! It will make a valuable addition to your shop. Great plans to build from or adapt. 5 1/2 x 8 1/2 booklet - jam packed - 22 pages
No. 891 \$4.50



Build a 26" Scroll Saw!

BUILD A 26" SCROLL SAW

by Sun Thrift

"A scroll saw in the 26-inch size can be an expensive item to purchase but you can build a rugged and very useful machine by following this plan, at a fraction of the cost. All materials may be obtained locally and all connections are made with bolts or screws, eliminating the need for any special castings or welding."

You'll find this saw uses common 6 1/2" pinned-end coping saw blades which are inexpensive and available almost anywhere. Most of the machine frame is built of 2x4 fir lumber. Angle iron, threaded rods, drill rod and other commonly available stock is used to build the rest

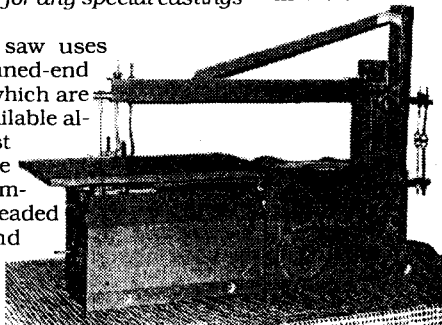
of the machine.

Specifications: 26" maximum throat, single speed, bench model scroll saw. 0-45° table tilt. 12" by 20 1/2" table. 860 strokes per minute with recommended sheave diameter ratio. Stroke adjustable from 3/8" to 3/4". 2" maximum depth of cut. Uses 1/4 hp motor

1725 rpm CCW rotation. Driveshaft bearings are self-aligning 1/2" diameter-bronze sleeve or ball.

You get text, parts list, photographs, and a full set of excellent plans along with recommendations and precautions for use of the completed saw. Excellent plans. Reasonable price. 8 1/2 x 11 stapled sheets 19 pages.

No. 1259 \$10.95

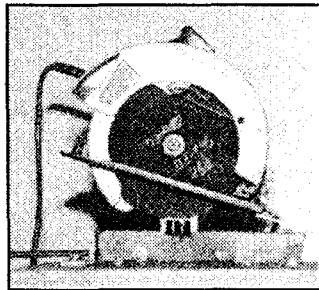


HOW TO BUILD AN ABRASIVE CUT-OFF SAW ATTACHMENT

by Kenneth Dixon

Using little more than angle iron, a sheet of plywood, and an abrasive cut-off disc, you can turn the portable circular saw you usually use on carpentry jobs into a powerful metal cutting saw. Dixon will show you how to build the hinge device that bolts to the saw's frame, and the vise clamp that holds the work securely for cutting. Although the plans show dimensions for his own saw, Dixon shows you how to tailor the plans to fit yours.

Save your arm! If you already have a saw and some angle iron, you can build a power-



ful new tool for just a few dollars. Like any power saw, an abrasive cutoff saw can be dangerous. But you'll be shown how to use the machine safely. The author's model has been used successfully without incident for quite some time now.

Build one! It's so easy, you're almost foolish not to! Low cost, detailed plans with drawings, dimensions, how-to and photos.

Get a copy. 5 1/2 x 8 1/2 booklet 14 pages.
No. 890 \$4.00

Abrasive Cut-off Saw!

GETTING THE MOST OUT OF YOUR BAND SAW AND SCROLL SAW

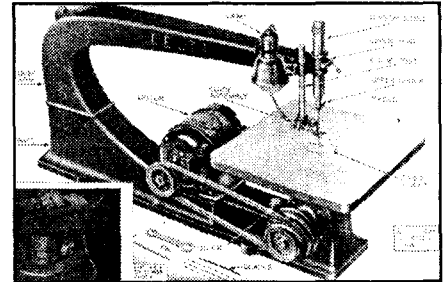
edited by Sam Brown

reprinted by Lindsay Publications

From 1937 comes this handy little booklet from Delta Manufacturing showing you how to use their band saw and scroll saw. You get a very heavily illustrated booklet of wall-to-wall how-to.

Chapters include the band saw, band saw blades, methods of working, metal cutting, scroll saw, scroll saw operations, sanding and filing and appendix.

Run a Band Saw! Scroll Saw!



You'll learn all the basic uses and techniques such as multiple sawing, ripping lumber, cutting thin metal tubing, aligning blades and much more. You get ideas for building jigs and supports, and even simple projects. Admittedly, this book is primarily for wood workers, but after seeing this, I'd really like to buy or build a large scroll saw.



I might even saw out a profile of my mother-in-law's nose. (But I don't think they make sheets of plywood that big...)

Get a copy. Enjoy. Fun reading. Ideas. Low-cost. Order a copy today. 6x9 booklet 48 pages
No. 21559 \$5.95

HOW TO BUILD A RADIAL ARM FLAME-CUTTER

by Richard Walker

You can use this flame cutter to make perfectly straight, exact right angle, or bevel cuts in thick steel plate. You can cut perfect circles although freehand spotting of the

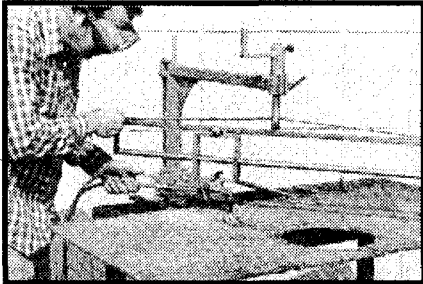
BUILD A FLAME CUTTER!

center takes a little time. You won't get a dead smooth cut like you will with an expensive motor driven unit, but this unit only costs from \$15 to \$100 to build!

This will take some skill to build: cutting, drilling, tapping, welding and some machining. This project is meant for experienced amateurs and professionals, so it could be tough for a raw beginner. You get excellently drawn plans, great how-to and lots of photos. Great addition to the well-equipped shop. 7 x 9 booklet, 20 pages.

No. 1255

\$8.95



Save Your Arm! Build Gingery's Power Hacksaw

BUILD A POWER HACKSAW WITH VISE

by Vincent Gingery

Dave Gingery's son, Vince, is a talented machinist in his own right. And Dave has taught him the secrets of how to turn out a high-quality construction manual. So save your arm. Get a copy of this, and build a power hacksaw.

Dave wrote me some time back, "I built a number of power hacksaws about 20 years ago. All of them worked after a fashion but none really well. Vince has demonstrated that a reduction belt drive is adequate. And he has somehow worked out the geometry so that the blade lifts on the return stroke without any additional mechanism. It is impressive to watch his machine stroke the blade smoothly through a slab of steel. And it does it accurately and in good time too."

From the introduction: "The hacksaw machine described in this manual is simply a power driven hacksaw frame. This particular machine uses a crank and connecting rod driven by an electric motor..."

The cutting is done on the return stroke because as the crank moves in a downward direction, it has a tendency pull the saw blade down against the work. As the crank moves in an upward direction it pushes the saw up and away from the work allowing for smooth and simple operation...

The saw presented in this manual is light



and weighs just a little over 50 pounds. Often times I need to cut material that is 20 feet long. In the past it had not only been a problem cutting this material by hand, but it had also been a problem of trying to fit this material in the garage... Now all I have to do is set my portable hacksaw outside the garage door, set it on the ground, clamp the material in the vise, and let the saw... work."

This is a 60 strokes-per-minute machine that uses a 14 tpi blade that will cut a 1/4" x 3" flat bar in a couple of minutes. You'll need a 1/3 hp 1725 motor. Standard pulleys, belts and pillow blocks reduce the drive to 278 rpm. The only special equipment necessary is a 100 amp welder. All holes are drilled and tapped, so a drill press would be a great help, although not essential.

This is a Gingery-quality manual. You won't find better how-to anywhere. And this is a proven machine. Build one! Order a copy. 8 1/2 x 11 softcover 66 pages No. 1312

\$8.95

Designing and Building a Horizontal/Vertical METAL CUTTING BANDSAW

by Vincent Gingery

introduction by Dave Gingery

Disgusted with a cheap \$200 import bandsaw, the Gingery's scoured the countryside for parts and ideas and ended up with this powerful, yet portable bandsaw. These two refugee-munchkins from the Land of Gingery wanted to test it by sawing the aircraft carrier Kennedy in half, but the Navy wouldn't let them. (I think they could do it...)

The actual saw table is 36" long and 9" wide. Most of the saw is bolted together from standard angle iron and strap, but there are a few welds. A 1/2 hp 1750 rpm motor powers the saw through a series of belts to achieve a blade speed of 159 feet per minute which is right on target for cutting mild steel. Rate of descent is controlled

THE GINGERY BANDSAW!

Professional quality bandsaw!

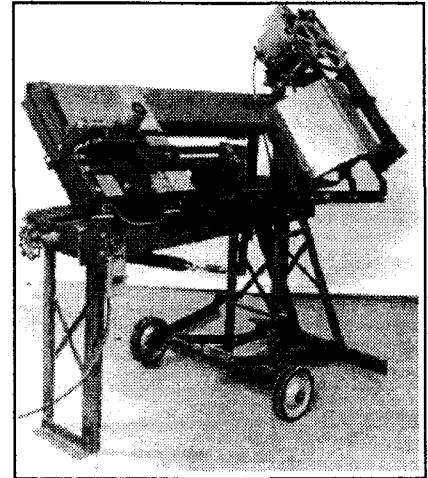
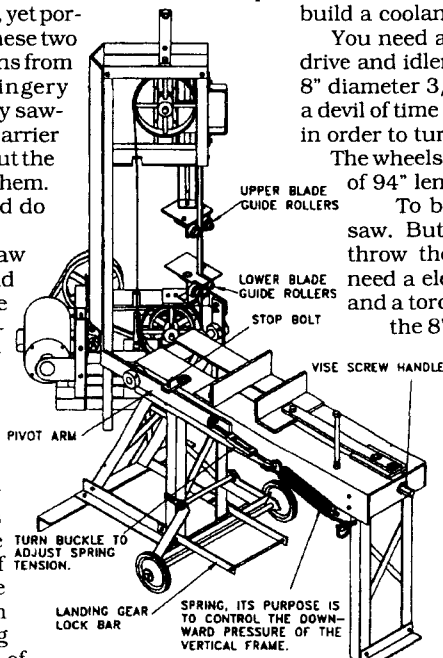
through a mechanism built around a garage door spring. This of professional quality and performance with ball bearing blade guides and all the rest. You may want to design and build a coolant pump and catch pan.

You need at least a nine inch lathe. The drive and idler wheels were fabricated from 8" diameter 3/8" thick steel pipe. They had a devil of time chucking sections in the lathe in order to turn them, but they pulled it off.

The wheels drive a 14 teeth per inch raker of 94" length.

To build this, you'll need a hacksaw. But after you're done, you can throw the hacksaw away. You'll also need an electric hand drill, a drill press, and a torch is handy to cut section from the 8" pipe if your lathe can't do the job with a cutoff tool. Most of the machining is quite simple, but you need at least a 9" lathe, a 6" 3-jaw chuck, and a 6" four jaw. Only a few welds are needed, and they can be done with 75 amps. Other than that, all you need are standard hand tools.

This is a great book. You get the usual Gingery total how-to quality. What has improved since the first charcoal foundry books is the use of computers. This latest book is



beautifully typeset. The illustrations are nicely done with a CAD-CAM program, and the top-notch content is as great as ever.

Get a copy of this. Build it, modify it, or just dream about it. If nothing else, get a copy of this to make your Gingery library complete. You can use the saw to cut steel for your favorite project or slice those rock-hard pork chops that you left on the grill too long. Top rate! After all, it's a Gingery book. Get a copy. 5 1/2 x 8 1/2 x 11 softcover 167 pages No. 1381

\$12.95

MECHANICAL MODELS

MAKING WOODEN MECHANICAL MODELS

by Allan & Gill Bridgewater

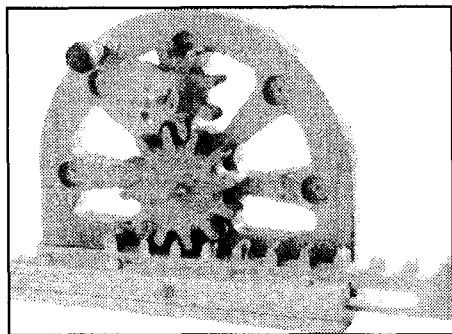
"15 Designs with visible wheels, cranks, pistons, cogs and cams."

This looks like a great book, and as I write this, I haven't seen all of it. What I am seeing

are production proofs from the publisher rather than a complete book. What you get are plans and how-to that enables you to build fifteen different mechanisms from wood.

Here's a reciprocating engine, an oil pumping rig, a centrifugal impeller pump, wheel bearing machine, a combustion engine, a cam and fork engine, a flywheel propeller machine, a rack and pinion machine, a pendulum recoil escapement, a flywheel and governor machine, and more.

These plans are for woodworkers looking for an excuse to turn on their lathe, tablesaw and router. The materials list calls for beech, cherry, walnut and other quality wood. And skills like laminating, tenon wedging, pegging, and whitening are needed. Building wooden models in itself sounds like fun.



But metalworkers should always consider the wooden model as merely a pattern from which a sand mold is fabricated and castings poured. Then a lathe, milling machine and drill press is used to assemble the machine. Instead of a linseed oil finish, you might consider polishing the aluminum casting to a mirror finish.

Use your head. Any good cook will tell you to follow the recipe exactly as stated the first time, and then improvise the next. That's what this book is about. Great ideas for wooden models. But what else can you do with it? Fire up your gray matter.

Interesting book. Excellent illustrations, plans, and above, all ideas. Get one. 8 1/2 x 11 softcover 144 pages 341 illustrations No. 1382 \$21.99

SMALL WOODWORKING PROJECTS

The Best of Fine Wood Working Magazine

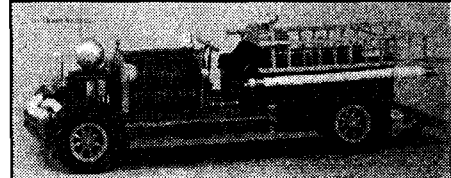
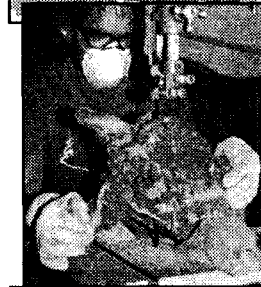
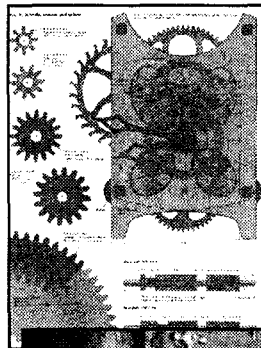
Woodworking in a metal catalog? Yup. Aah seeen this wooden clock on the cover and the incredible color plans inside and thought this would make a great project...

A Wooden Clock!?

especially when done in metal. In fact the clock gears are shown being milled from wood on a metal lathe.

It looks like a neat clock with seven gearwheels, the largest 6 13/16" in diameter, with a 3' pendulum. It supposedly keeps time to within a few seconds per day.

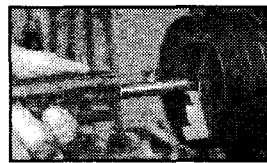
And there are other small projects that you can make from wood and perhaps some (with imagination) from metal. Make a fireplace bellows for your foundry. Make a walnut lap desk, river whistles and cane flutes, boxes from burls, wooden spoons, wooden shoes, bowls, pepper mills, a pool cue, jigsaw puzzles and even a sliding top box for your nitroglyc-



erine, tranquilizers, snuff or illicit Cuban cigars. And more.

You'll learn how to laminate wood to produce beautiful turnings, bend wood to make snowshoes, make toy trucks and marble chase games, and more. (My first love is the clock.)

Great projects. Lots of color, plans, and fun. Well worth the price. Get a copy, and get going. 9x12 softcover 127 pages No. 5032 \$14.95



Clean Your CLOCK!

STRIKING AND CHIMING CLOCKS THEIR WORKING AND REPAIR

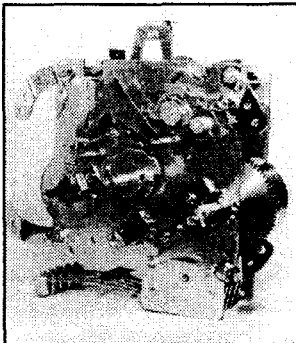
by Eric Smith

"...Striking and chiming clocks are a common enough sight in homes...."

A growing number of enthusiasts are keen to learn about the repair and restoration of these beautiful pieces, and it is to them that this much-needed workshop manual is addressed....

"Expert clock-repairer Eric Smith offers detailed notes on the principal mechanisms involved, along with plenty of practical advice which both amateur and professional restorers will find invaluable. He focuses in particular on the all-important sounding systems, aware that a full understanding here will help to improve efficient handling of the other mechanisms.

His comprehensive instruction also explains repair and setting up, and outlines the common variations amongst models. Throughout, the author concentrates on

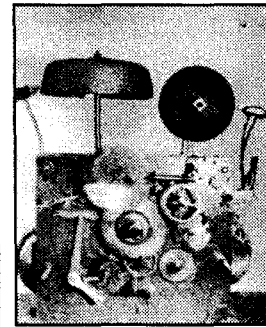
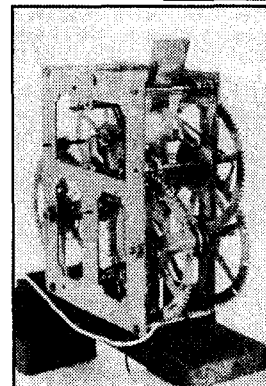


the medium-priced and inexpensive clocks which are most likely to turn up for repair..."

Chapters include elements of sounding mechanisms, striking and chiming gear trains, countwheel striking, rack striking, countwheel chiming, rack chiming, repair of individual parts, setting up and adjusting, correcting faults, and appendix.

You can make a clock that keeps some semblance of time from a plank and a pocket knife. When you start looking at more precise time

pieces, you discover fascinating machines. When you move into the world of chronometers and chiming clocks, you move into the arena of incredible mechanisms. This book is about the latter. Nicely illustrated. Excellent book. From England. Worth having. 6 1/2 x 10 hardcover 192 pages No. 1405 \$24.95



CLASSIC 1882 WATCHMAKER'S HANDBOOK

WATCHMAKERS' HAND-BOOK

by *Claudius Saunier*

reprinted by Lindsay Publications

Saunier's beautiful 1882 handbook is divided into six parts: geometry and measurement, materials used in horology, health and manipulation, tools and appliances, repairing and examining watches, and practical receipts.

Within each part are numerous short "chapters" that will teach you a particular skill such as tempering steel, bronzing, polishing brass wheels, use of a file, use of a graver, and more. You'll be introduced to all the tools a watchmaker could want: files, pliers, the lathe, Boley turns, chucks, ferules, chamfering tools, stud tools, dividing plate, screw-plates and taps, mill cutters and much more.

You'll learn about the Geneva movement, putting a watch together, the English movement, timing a watch, timing a clock, how to demagnetize a watch, and much more. You'll get practical hints and tips such as making the barrel and cover, making and repairing a stopwork, repairing a barrel ar-

bor, adjusting a fusee, polishing pinion leaves, and more. You'll get discussions on pivots, escapements, pallets, enamel dials and their fabrication, hands, glasses and much more.

Although this will not tell you how to build a watch step-by-step, it will teach you all the basic skills and tricks of the trade. It is an old time watchmaker's reference for problem solving. If you are fascinated by watches and clocks, then you'll certainly want a copy of this almost impossible-to-find book. The rest of us can learn precision techniques and finesse that will never be found in the blacksmith shop.

This is a fun book to read. You'll find a surprising number of great old engravings of tools and machinery. Get one and enjoy it. 5 1/2 x 8 1/2 softcover 482 pages plus 26 additional pages of mechanical drawings No. 21184 \$22.95

Watch-Makers' Tool Catalog

WATCH-MAKERS' TOOLS, MATERIAL AND SUPPLIES

by *Hofman Supply Co*

reprinted by Lindsay Publications

This "Catalogue and Manual on Watch Repairing" is an absolutely beautifully illustrated catalog of tools and supplies for watchmakers published between 1880 and 1900.

You'll see tiny horn anvils, turning arbors, watch case bezel tools, blow pipes, felt case buffs, glass bench movement covers, boiling cups, counter shafts, center lathes, depthing tools, pivot drills, a double-base engraving block, gravers, graver handles, Swiss and American hammers, steel verge lathe, polishing lathe, American jeweler's lathes, pliers, and on and on.

Later on you'll see Arkansas Oil Stone Powder, watch oil, Alpha Roman coloring solution, unfinished American case springs, watch parts including cases, gears, springs, pinions, ratchet bridges, and much more. You'll see lots of watchmakers' spectacles, magnifying glasses, and other miscellaneous trade items including foot powered jig saws, lathes, show cases, and more.

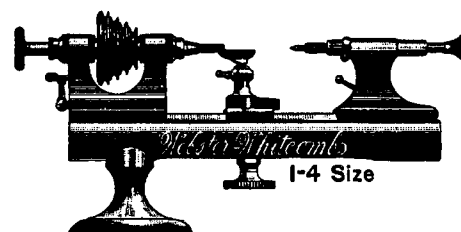
The last 25 page section is entitled "Hofman's Manual on Watch Repairing" which includes taking down a watch, cleaning watches, repair of escapement watches, drilling, new pivots, making a new balance staff, examining the escapement, enlarging jewel holes, mending a fusee chain, and so on.

The original is printed on thin yellowing paper that is not very opaque. Ink on the opposite side of the page is slightly visible, making it tough to reproduce. But it turned out very well. If you're into horology, love tools, or just like to look at "pitchers", this is a must have. Order one. 6x9 softcover 162 pages No. 21290 \$9.95

HARDCOVER EDITION

No. 21303

\$16.95



Workshop Notes!

WORKSHOP NOTES

FOR JEWELERS & WATCHMAKERS

from *Jewelers' Circular Publishing*

reprinted by Lindsay Publications

The *Jeweler's Circular* had been published for 22 years when this reprint appeared in 1892. And it's a "neat" book (as a certified gen-u-wine nerd would say... and that's you and me, son...).

You get, primarily, hints and tips extracted from the periodical. You get info on time-pieces which I think are amazing machines, but you also get unusual tips on metalworking in general. All of it being unusual.

There are no chapters. All the articles are run together. Topics, naturally, are those of use to jewelers and watchmakers. These are trade secrets, plain of usable information. If you're wanting to make a replica of Big Ben, forget it.

You get countless articles short and long with titles like the Breguet spring, practical method for lengthening a balance spring, wood rod and lead bob for pendulum, a good way to clean a main-spring, the rounding-up tool, scape wheels of swiss watches, handsome frosting of wheels etc, new method of hardening delicate steel parts, to repair a pinion, to make a whetstone, hardening gold springs, the knack of pivoting, hand turning in watch work, gold and its treatment in smelting and rolling, dissolving and precipitating gold, lapping, acid coloring, electro fire-gilding and silvering, the art of enameling, to cast in fish-bone, silver solders - their uses and applications, resilvering brass clock dials, solder for aluminum, artificial gold, etching on glass and metal, the pendulum and its laws of oscillation and much, much more.

My only criticism is that there are no pictures. So if you can't read, you aren't going to learn much. There are a few eye-popping ads in the back with a few pictures, but that's about all.

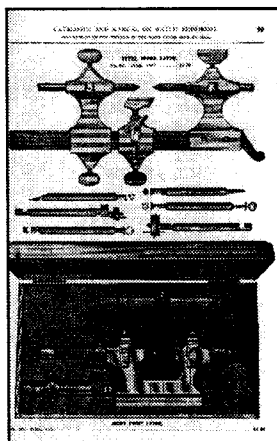
A really interesting collection of useful information written by and for people who needed it. Consider it carefully. Not something you're going to find everyday. Get one. 7x10 softcover 220 pages No. 21826 \$12.95

HARDCOVER EDITION

Case-bound edition. Only a few. While they last.

No. 21834

\$22.95

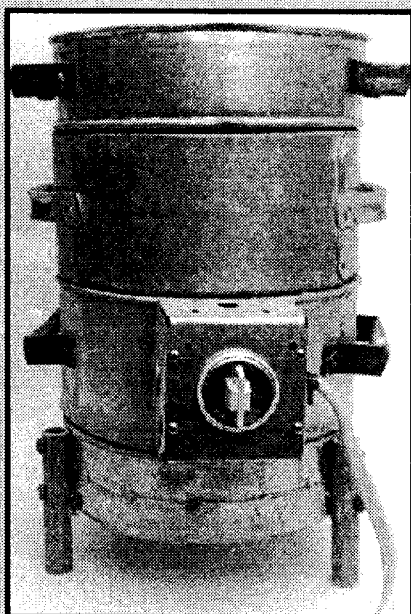


LI'L BERTHA

(Dave Gingery's 1800°
Possum Cooker!
Melts Metal, too...)

"LIL BERTHA" ELECTRIC FURNACE
by Dave Gingery

Let Dave show you how to melt aluminum and brass with electricity! If you have good ventilation and are careful, you can melt indoors, rain or shine. Electricity isn't cheap, but it's no more expensive than charcoal, and it's right there in the wall — all you need. Best of all, you can dial up the heat you need on thermostat, put the metal in the crucible, and go ram up your molds. After the metal melts, it will sit there at pouring temperature until you're ready. The furnace will practically watch itself.



You can build this high performance electric furnace that runs at 1800° practically forever for very little money. And it's surprisingly easy.

Not only that, you can use Lil' Bertha to calcine investment molds, carburize and heat treat metal, forge, temper, anneal, enamel, fire ceramics, and many other tasks. If you go to the trouble of getting the harder-to-find high temperature electric element, you can fire at 2300° for extended periods, making this furnace ideal for melting brass!

Dave will show you how to size the furnace to fit your needs, where to get and how to handle crucibles, make the electrical calculations, and more. This is typical Gingery material — top rate wall-to-wall how-to. Order a copy. 5 1/2 x 8 1/2 softcover 67 pages. No. 4163 \$8.95

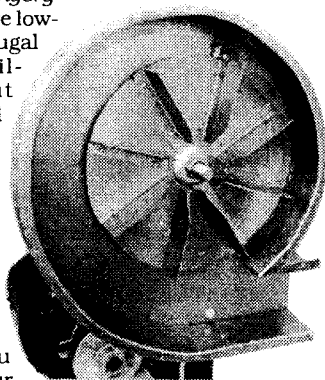
Call early in the day!

If you intend to call us for information, to place an order, or to troubleshoot a problem, call us early in the day. We may be difficult to reach late in the afternoon. Call soon enough, and we'll be able to get your order out the same day.

HOW TO DESIGN & BUILD CENTRIFUGAL FANS

by Dave Gingery

There are low-cost centrifugal fans available, but rarely will they do exactly what you want them to. If you're building a small furnace to melt aluminum, you can use a surplus fan. If you're going to build a brass or cast iron foundry, you'll probably need more pressure than a make-shift fan can provide. If you're going to build a dust collection system for woodworking tools, a welding booth, or a grinding wheel, you'll find that



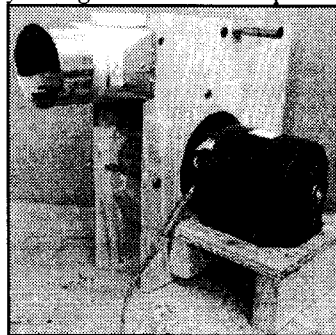
Build Dave Gingery's Centrifugal Fans

Build powerful blowers
for a variety of uses!

the blowers you need are not available at low cost.

Dave will show you how to design a fan with simple math that will provide the volume and pressure you need for the system you're building. With a pocket calculator you can figure the dimensions of the fan, the size of motor needed to drive it, and predict performance.

You'll be shown how to use pillow blocks, shafting, plywood, sheet metal and other common materials to build a dirt cheap blower that outperforms any make-do blower you might find on the surplus market.



Dave will also show you how to build a simple manometer and pitot tube. You can actually measure performance and fine tune your air system. Dave used this equipment to build and adjust a powerful gas burner for his iron-melting crucible furnace.

Learn how to build a dust precipitating cyclone, design sheet metal transition pieces (a very valuable skill), balance a dust collection system, build a static balancing stand, and more. Gingery's brand of simplified do-it-yourself knowledge is not available anywhere else. Top rate. Order a copy. 5 1/2 x 8 1/2 softcover 112 pages No. 4600

\$9.95

Melt Iron in a Gas Fired CRUCIBLE FURNACE!

Fast, safe melts!
Easy-to-build!

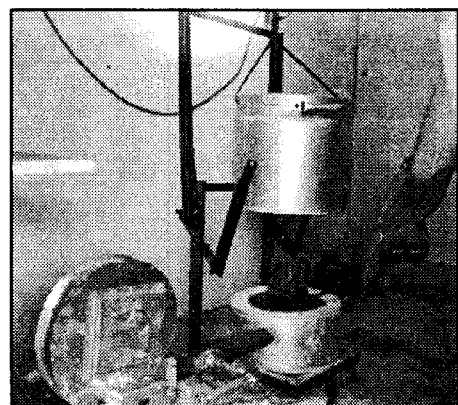
BUILDING A GAS-FIRED CRUCIBLE FURNACE

by Dave Gingery

Dave says beginners should "cut their teeth" melting and casting aluminum before trying "hot stuff." An excellent simple, low-cost furnace for this is the charcoal furnace described in one of Dave's earlier books.

Once experienced, you'll want to pour larger quantities of aluminum than the charcoal foundry can provide, alloys with higher melting points such as brass, and eventually cast iron. You'll also want to use a more convenient and lower-cost fuel. The gas-fired crucible furnace is exactly what you need.

Here you can melt up to 20 pounds of cast iron in a crucible. When the melt is ready to pour, both the top and body of furnace raise up so that you can grasp the white hot



crucible from the sides making the crucible easier and safer to control than if you had to use tongs to lift the crucible straight up as is done with other furnaces.

Although charcoal is widely available, it is messy and somewhat expensive. Gas is low-cost and clean, but requires a more complicated burner. Dave will show you all the tricks, including how to build the centrifugal blower, so that you get a hot, efficient and quiet gas burner.

You get wall-to-wall how-to — the detailed information that Dave is famous for. Six chapters cover basic design, building the furnace body, building the frame, building the burner, crucible and tongs, and operating the furnace. You get photographs, drawings and proven techniques.

You get the standard Gingery quality. Full tilt! Complete! Detailed! Excellent! You can pour your own cast iron castings, quickly and safely adding a whole new dimension to your machine shop. Get a copy of this. Highest recommendation! 5 1/2 x 8 1/2 softcover 108 pages

No. 1281

\$10.95

Green Sand Casting

Quality Castings require Quality Sand Molds!



GREEN-SAND CASTING

reprinted by
Lindsay Publications

You've built a small furnace, and you have a ladle of molten metal. What are you going to do with it? Are you going to pour it into an old boot? You had better have a sand mold ready.

You probably already realize that making green-sand molds (the sand isn't really green, just wet) is more of an art than a science. Where to put sprues and runners, vents for steam and gas, and just how hard to

ram up the sand are skills that come only with practice.

Old timers will tell you that you can't really learn green-sand molding from a book, and they're probably right. But this book comes as close to revealing the secrets as any I've seen. When you see the gorgeous illustrations, you'll agree.

This is a reprint of chapters from a 1903 technical school textbook. Learn about tools, materials and methods, including sands, tempering, sieves and riddles, rammers, required hardness, deep molds and venting, drawing the pattern, closing and pouring, shaking out the casting, and much more.

Learn about molding by bedding in — a technique in which you build the mold right on the foundry floor in a pile of sand. It's quite a skill to level and set up such a mold.

In part three you'll learn about molds for casting iron. You get rare illustrated how-to on making joints for irregular forms, three-part molds in three-part flasks, three part molds in two-part flasks, followboards in forming joints, plaster-of-Paris matches, match plates, gagers and soldiers, setting of cross bars, nails and rods at joints and corners, valuable lessons on patching molds, swabbing broken corners, sleeeking and printing dry blackening, skin-dried molds, types of gates and pouring basins and more.

Then learn about chaplets, problems such as blowholes, shrink holes, shrinking and contraction, techniques of proper feeding, bench molding with different type of snap flasks, and on and on.

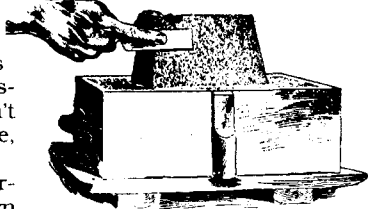
Most of what you learn in this book is on a larger scale than what a home foundryman might need. But the techniques are exactly the same. The illustrations are dynamite! You won't just be told how it was done, you'll see for yourself.

Build Gingery's charcoal furnace. Ram up a mold, melt down some aluminum cans and scrap and make a pour. No matter how good your casting is, you'll want to make it better and more complicated next time. You'll learn how to do just that — right here!

This is one of the essential books for the foundry library. Excellent book. More techniques here than you will use in a month of Sundays. Get a copy! 5 1/2 x 8 1/2 softcover 174 pages

No. 4082

\$9.95



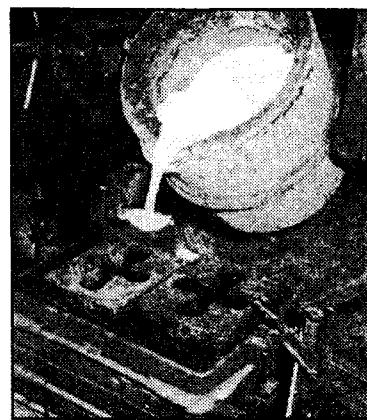
FOUNDRY MANUAL

by the United States Navy
reprinted by Lindsay Publications

Looking for a great foundry handbook? I hate to admit the government ever did anything right, but this 1958 NAVSHIPS publication is a gem. It's loaded with some of the best foundry photos and drawings I've ever seen. You can learn by merely studying the illustrations.

The preface accurately describes the Manual—

"This Manual is intended primarily for use by foundry



Navy Foundry Manual!

In 1958 the government may actually have done something right!

personnel aboard repair ships and tenders. The recommended practices are based on procedures proved workable under Navy conditions and are supplemented by information from industrial sources.

"The Manual is divided into two general sections. The first section, chapters 1 through 13, contains information of a general nature, such as 'How Metals Solidify,' 'Designing a Casting,' 'Sands for Mold and Cores,' 'Gates, Risers, and Chills,' and 'Description and Operation of Melting Furnaces.' Subjects covered in these chapters are generally applicable to all of the metals that may be cast aboard ship.

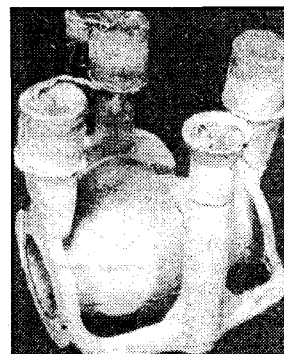
"The second section, chapters 14 through 21, contains information on specific types of alloys, such as 'Copper-Base Alloys,' 'Aluminum-Base Alloys,' 'Cast Iron,' and 'Steel.' Specific melting practices, suggestions for sand mixes, molding practices, gating, and risering are covered in these chapters.

This manual has been written with the 'how-to-do-it' idea as the principal aim. Discussions as to the 'why' of certain procedures have been kept to a minimum. This manual contains information that should result in the production of consistently better castings by repair ship personnel."

Although it pays to know why procedures are performed the way they are, the first step is to perform them. Consider this to be pure practical how-to. It delivers. Excellent book. No two ways about it. If you pour metal, you need this book. Get a copy of this. You won't be disappointed. A gem! 8 1/2 x 11 softcover over 300 pages

No. 20072

\$19.95



Modeling In Wax

**MODELING IN WAX
FOR JEWELRY
& SCULPTURE**

by Laurence Kallenberg

Lost wax casting is a powerful technique for producing precision metal castings. The author draws on twenty years of experience to explain the process of lost-wax casting, equipment, wax models from molds, carving blue and purple wax, carving green wax, wax build-up, sheet and rod wax, accidental effects, specialized wax techniques, and finishing the metal model.

All of this, ofcourse, is designed for making intricate jewelry. You'll learn stock wax a diagonal dome ring, or a pendant with stone, a rose pin, a free form pin and more.

Even if you're not intending to cast precious metal jewelry, the lessons taught here will help you produce intricate machine parts and works of art. It's a well illustrated book, nicely written, and although it's a bit expensive, it delivers rare information. This is an essential book for the lost-wax craftsman. Consider it carefully. 7x10 hardcover 252 pages

No. 1290 \$32.95

Cast Small Metal & Rubber Parts!

**HOW TO CAST
SMALL METAL & RUBBER PARTS**

by W. A. Cannon

Restorers of old autos and users of small, specialized castings take note! You'll find all you need to know about reproducing both metal and rubber castings right here. You'll find chapters on six casting methods, alloys, equipment you can make, molding sands, fluxes, degassers, and flasks. Learn how to make molds and pour. Learn about a re-



markable rubber substitute and how to use it to make grommets, pads and stripping. Learn how to mold from damaged or defective molds. Lots more. A good book on an unusual topic. 5 1/2 x 8 1/2 softcover 144 pages

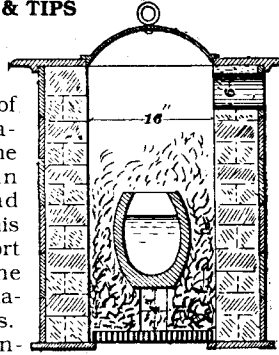
No. 117 \$14.95

BRASS HINTS & TIPS

reprinted by
Lindsay
Publications

From issues of American Machinist Magazine published in 1880's and 1890's comes this collection of short articles on the casting and machining of brass.

Articles include tools for working brass such as jigs for holding brass bearings while facing off in a



Brass Hints & Tips

milling machine, a jig for winding brass springs, internal threading tools for making nuts, and more. Three different articles will show you how to design and build furnaces to melt brass. Letters from readers of that era will give you tips on furnace modification and crucible care, and how to clean brass, remove sand scale, make special cores and so on.

These old-timers will show you how they poured their own brass castings and turned their own bearings. You get many unusual century-old illustrations. Excellent. Order a copy! 5 1/2 x 8 1/2 booklet 16 pages

No. 849 \$3.00

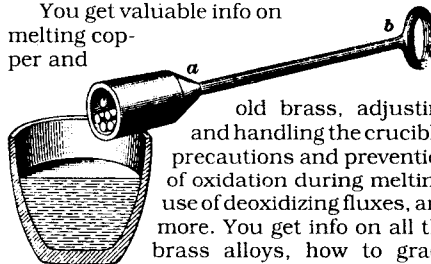
Brass Founding

BRASS FOUNDRY

reprinted by Lindsay Publications

Pouring molten brass is somewhat different from pouring aluminum or iron. This chapter from a 1903 technical school textbook will show you the differences. You'll learn about the molding sand needed for brass, blackenings and partings, contraction, gating and feeding, cleaning of castings in tumbling barrels and with pickling, the crucible furnace, a simple brass furnace, brass furnace in a battery, increasing the speed of the melt, combined cupola and crucible furnace, oil burning furnaces, care of crucibles, and more.

You get valuable info on melting copper and



old brass, adjusting and handling the crucible, precautions and prevention of oxidation during melting, use of deoxidizing fluxes, and more. You get info on all the brass alloys, how to grade scrap brass, borings and turn-

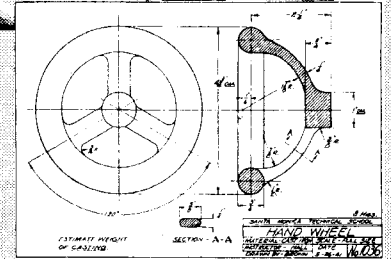
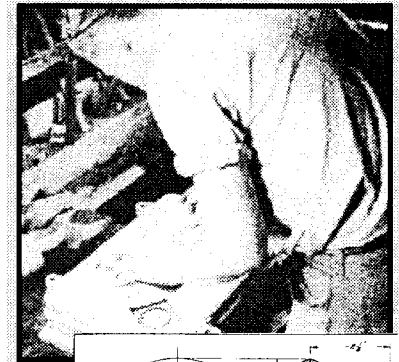
ings for melting. Great info! If you think you'll ever want to attempt to pour brass, then order a copy now! 5 1/2 x 8 1/2 booklet 39 pages

No. 868 \$4.00

**If you call in your
order, have your credit
card numbers ready!**

Practical Wood Patternmaking

"The purpose of this textbook is to prepare the individual to become skilled patternmaker in the shortest possible time."



PRACTICAL WOOD PATTERNMAKING

by J Robert Hall

reprinted by Lindsay Publications

In 1943 Hall was the Instructor of Patternmaking and Foundry at the Santa Monica Technical School in California. Judging from his book, he must have been more a man of action than words. You get dimensioned drawings, molding diagrams and photographs while text is held to a minimum.

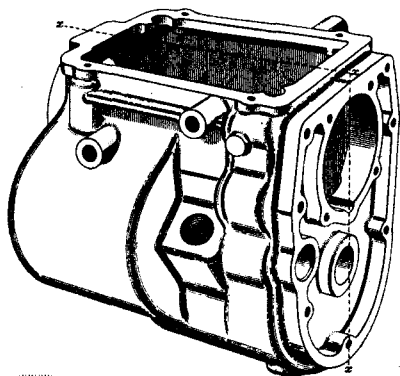
You get 89 lessons that can't all be listed here. Each lesson, or chapter, starts with the words "How to". You'll discover how to sharpen a gouge, measure lumber, use runners and gates, lay out and cut square holes, use leather fillets, use templates, lay out and cut a true round or ball, make cores, make and use face plates, use wing core and wing prints, use babbit anchors, use balance cores and chaplets in core work, make a medium or large spur-gear pattern, use a cupola and crucible in metal melting, and on and on.

You get a large format book with 89 lessons, wall-to-wall illustrations, including dimensioned drawings of patterns of useful castings such as bearing caps, a hand lever for a machine, a crank, a foot pedal, a hand wheel, a pulley, and dozens more.

You'll visit three different foundries to watch molders ram up molds, to see their inventory of stock patterns, and more.

A great teacher and a great reference from a more modern perspective! If you melt metal, you need patterns to make molds. This is a valuable book to have in your foundry library. They don't get much better than this. Grab a copy. 8 1/2 x 11 softcover 188 pages

No. 21095 \$14.95



METAL PATTERNS!

METAL PATTERN MAKING

by Charles F. Fuller

reprinted by Lindsay Publications

If you intend to make numerous castings of a particular part, consider using a metal pattern. They are more durable than wooden patterns, and much easier and faster to produce if you need multiple copies of the pattern itself. You'll learn how to make the complicated patterns and coreboxes

needed to mold and cast engine pistons, gear cases, pulleys, cast-iron stoves, a clevish, and much more. You get lots of unusual information. Learn methods of gating thin patterns, patching blowholes in aluminum castings, molding processes, and more.

If you decide to have a commercial foundry pour a large number of castings for you, you'll need durable patterns that can be used on molding machines. This will be the book you need.

Everything is heavily illustrated, and the text is brief, detailed, and easy to read and understand. Wall-to-wall illustrations. If you're a foundry freak, you'll find it fun to read even if you never use any of it. An excellent book from 1928. Get a copy. 5 1/2 x 8 1/2 softcover 172 pages

No. 20463

\$9.95

Lindsay,

I always enjoy your catalogs both inside and outside. Your sense of humor is as warped as mine.

Your business is the only one that I would gladly write a testimonial for. Always great books and great service. I wish that I could afford to buy a copy of every book, and had the time to build all the projects.

Keep up the search for good books, and keep having fun with the catalogs.

John Williams

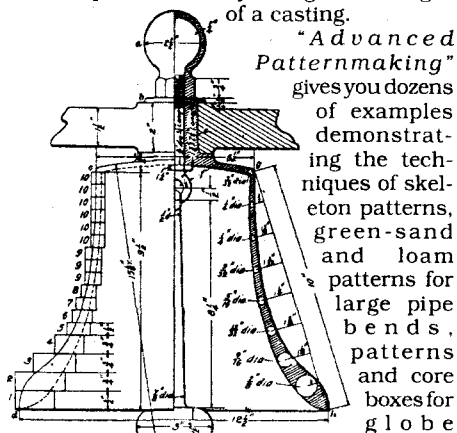
Advanced Patternmaking

Your castings can only be as good as your patterns!

ADVANCED PATTERNMAKING

reprinted by Lindsay Publications

Patternmaking is probably the most important step in producing high quality castings because minor changes in pattern and fillet shape can radically change the strength of a casting.

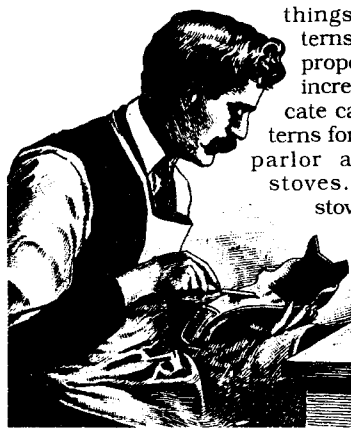


"Advanced Patternmaking" gives you dozens of examples demonstrating the techniques of skeleton patterns, green-sand and loam patterns for large pipe bends, patterns and core boxes for globe valves and three-way cocks. You'll see patterns for wheels and gears with four arms, web plates, and six or more arms. You'll see how a pattern for a shaft coupling is made.

Some of the more interesting examples you'll see are the patterns for steam engines: cylinder head and cover, disk crank, steam chest cover, Corliss engine valve gear and slide-valve engine cylinder.

You'll find a stop or throttle valve, special three-way cock, small bell, patterns and core boxes for casting chain, spur gear and rack, miter and bevel gear patterns, worm and worm gears, and hollow arm flywheels.

Finally, the last section will show you such complicated things as patterns for screw propellers and incredible intricate carved patterns for cast iron parlor and cook stoves. Making stove patterns is an incredible skill, and this is the only place I've ever seen it taught.



Melting metal is one thing, but turning molten metal into something useful is another. This is a great book with great illustrations! Reasonable price! 5 1/2 x 8 1/2 softcover 144 pages

No. 4090

\$9.95

Hardening & Tempering

HARDENING, TEMPERING, ANNEALING AND FORGING OF STEEL

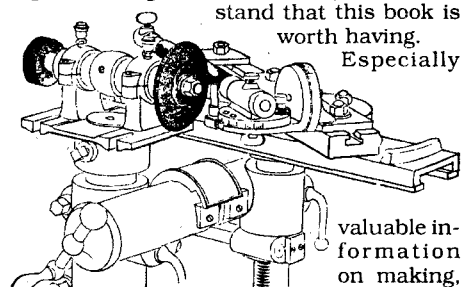
by Joseph V. Woodworth

reprinted by Lindsay Publications

One of the great advantages of steel is the machinist's ability to change its hardness simply by heating and cooling the steel in specific ways. You can make steel rock hard and brittle through hardening. You can soften it somewhat and make it less brittle by tempering. And if you want totally soft steel you can anneal it.

This 1907 third edition will show you industrial state of the art as it was then. It may be old, but the processes haven't changed. And when you see that this book is all how-to and practical recommendations together with great illustrations, you'll understand that this book is worth having.

Especially

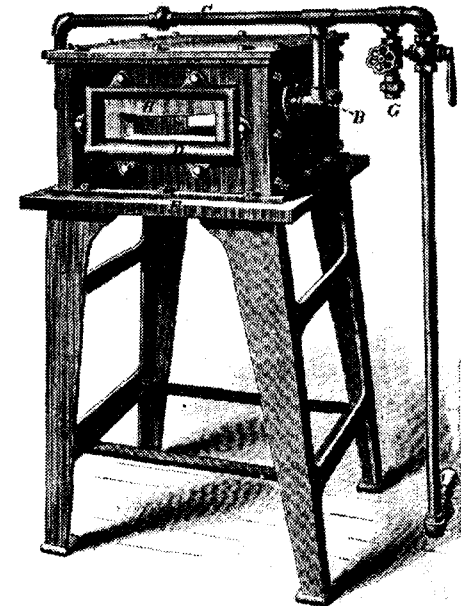


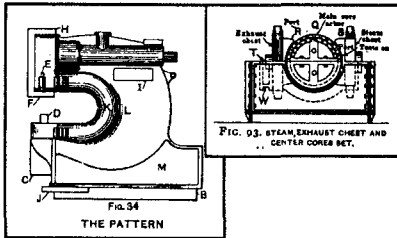
valuable information on making, hardening and finishing all types of tools, including mills, drills, taps, reamers, dies, countersinks and more. But be careful! This is old technology, and it can be very dangerous if you're not careful.

Get a copy of this helpful and useful book. Put one in your reference library. You'll have it when you need it instead of calling us someday and having us ship a copy by overnight courier at three times the price (if we still have it then). Order a copy today! 5 1/2 x 8 1/2 softcover 288 pages

No. 20498

\$9.95





FOUNDRY PRACTICE

by R. H. Palmer

reprinted by Lindsay Publications

Palmer will teach you some of the usual techniques taught in most other books such as molding a hand wheel, molding with a false cheek, molding a double groove sheave in a three-part flask, and more.

Cast Lathe Beds, Steam Engines, and much More!

But then he teaches molding a draw-bench frame on the floor, molding a gap-press frame, casting lathe beds and chilling the ways, molding ornamental columns, large kettles, car wheels, molding an engine bed in a skin-dried mold, and molding a propeller. You'll learn to use dry sand molds to pour a Corliss engine cylinder, a slide valve locomotive cylinder, a superheater locomotive cylinder, and even printing press cylinders.

You get info on loam molding, dry-sand cores, setting cores, using chaplets, and on risers, shrinkheads, and feeding heads. Chapters will teach you how to clean castings, and use molding machines such as power squeezers, jarring machines, roll-over machines, and more. Learn to repair broken castings with thermit and oxy-acetylene welding. You get chapters on molding tools, molding sand, iron and its composition, operation of the cupola, the air-furnace, and the special differences practiced in a brass foundry.

This is a great 1919 book revealing techniques usually only learned through apprenticeship. Obviously, these castings are really big, but the techniques are valid for our scaled down needs. Great illustrations! If you pour machine castings, you should have a copy of this in your library. Order a copy today! 5 1/2 x 8 1/2 softcover 390 pages

No. 20552

\$13.95

What Metal is All About!

ELEMENTARY METALLURGY AND METALLOGRAPHY

by A. M. Shrager

You may be a real hot-shot with a lathe or arc welder, but do you really know how steel is made? Or what hardening and tempering is all about? Or about corrosion and rust? If you don't, you should have a copy of this book in your library.

You'll learn about Bessemer steel, arc furnaces, working of iron and steel, heat treatment, annealing, surface hardening, alloy steels, corrosion, copper aluminum and magnesium alloys, zinc, control, testing, foundry practice and much, much more. You'll find this book is loaded with basic

CORE MAKING

Secrets of Making and Use Cores

CORE MAKING 1940

by Elmer F. Scott

reprinted by Lindsay Publications

When General Motors casts a manifold for an automobile engine, how do they create the complicated passageways? With cores.

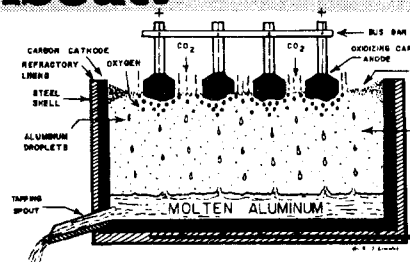
Cores are bizarre shapes made from sand and a sticky binder like molasses. After the core is molded, it is baked until hard. After the main green sand mold is rammed up, the core is carefully placed inside, and the mold is closed up. After pouring the casting, the hardened sand core can be broken out to leave the hollow passage. Cores save unnecessary time and expense in machining, and in manifolds, for instance, produce passageways almost impossible to create any other way.

Although this is a textbook for an apprentice about to enter an industrial foundry, there is enough information to make it useful for the home foundryman. You learn about cores and tests, materials used, core-sand mixtures, green-sand cores, sweeping green-sand cores, making green-sand cores in boxes, making small round cores by hand, core-making machines, reinforcing of cores, venting of cores, core plates and dryers, core baking, treatment of dried cores, and core room temperatures.

This is a revised and expanded edition of the coremaking section from *Core Making, Dry-Sand & Loam Molding* that we offered until a couple of years ago. This 1940 edition is twice the size of the 1903 edition we offered, although many of the same illustrations are repeated. If you don't have that book, you should have copy of this for your foundry reference library. Cores are extremely useful, and the price of this book is right. Get one. 5 1/2 x 8 1/2 softcover 80 pages

No. 21419

\$7.95



information that you can use. Loaded with illustrations. No math. Complete with appendix and glossary. You can't afford not to have a copy (certainly not at this price!!)

5 1/2 x 8 1/2 paperback 406 pages

No. 54

\$8.95

Thermit!

THERMIT WELDING PROCESS

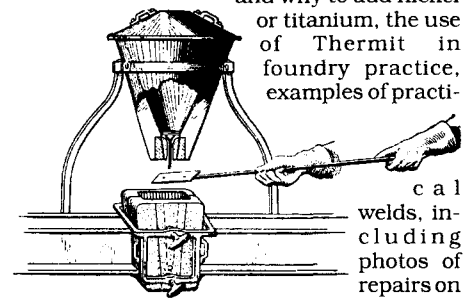
by Richard N. Hart

reprinted by Lindsay Publications

Thermit! What an incredible process! Take a mixture of powdered aluminum and iron oxide, ignite it, and stand back! Within seconds the mixture flames to twice the temperature of molten steel, and from the bottom of the special crucible comes molten iron. In 1914 Thermit was a cheap and simple way to weld railroad track, axles, and even broken motor shafts.

Learn about the invention of Thermit process, welding rail, special crucible and rail molds, butt welding of pipes, broken locomotive frames, and much more. You get detailed information on the chemistry involved, how to set and preheat pieces, how

and why to add nickel or titanium, the use of Thermit in foundry practice, examples of practi-



boat rudder, a locomotive frame, even a steamboat paddlewheel axle!

Unusual process! Loads of rare information! Get a copy! 5 1/2 x 8 1/2 booklet 40 pages

No. 899

\$4.25

Hammer Work!

reprinted by Lindsay Publications

You'll see trip hammers, a foot operated hammer, rubber-cushioned helve hammers, upright helve hammers and others. You'll learn how work is broken down with a hammer and then finished. Discussed are steam driven helve and forging hammers, hammer foundations, their proper weight, and hammer tools such as porter bars, stocks, hacks, swages, dies, and more.

You'll find examples of hammer work such as welding layers of scrap into a single ingot, making axles, large iron shafts, crankshafts, connecting rods, and hollow forging. Learn how steel is welded to iron.

Excellent illustrations and easy-to-read text. 1906. Low price. Valuable reading for the blacksmith who is looking to power tools to expand his capabilities. Interesting reading for everyone. Get a copy. 5 1/2 x 8 1/2 booklet 36 pages

No. 20765

\$3.95

Bell Founding



left: Closing down the mold by lowering the lined case over the core.

below: Fetting down a bell straight from the mold

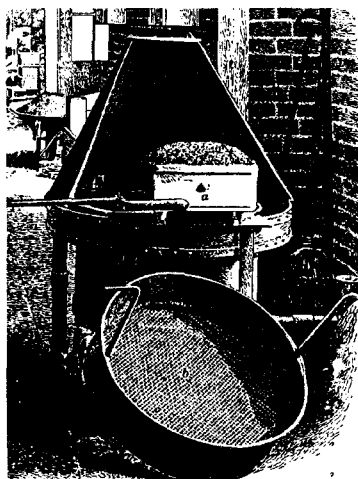


BELLFOUNDING

by Trevor S. Jennings

"With the help of specially prepared photographs this book describes the methods of bell production and the role of the bellfounder. Beginning with the history of bells and its industrial significance, the development of moulding techniques and the equipment used in each operation is described with explanations of the technicalities of furnace preparation, casting and "fetting down". Bell tuning is a highly specialised process peculiar to each individual bellfounder and the intricacies of the complex musical and scientific procedures are explored. A further chapter deals with the specialised gear required to hang and ring the bell, tracing the modifications in form down to the sophisticated arrangements in use today."

Photos of foundry patterns, rough castings, bell boring lathe, clappers, more. From England. 5 3/4 x 8 1/4 booklet 32 pages No. 1364 \$4.25



Heat Treat!

Melting & Casting ALUMINUM

MELTING & CASTING ALUMINUM

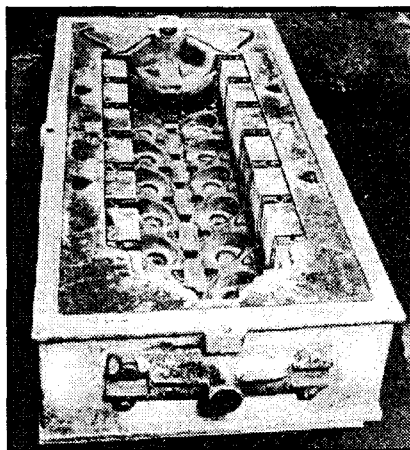
by Robert J Anderson

You get five chapters (the only really good chapters) from a huge 1925 engineering text covering melting practice, production of secondary aluminum (in other words, recycling scrap), foundry practice, casting losses and defects, and the production of die castings with permanent molds.

There are probably newer alloys and better ways of handling them developed, but aluminum is still aluminum, and for the low-tech applications we generally come up with, this book gives really detailed solid information that is otherwise hard to find.

You'll find discussions of fluxes, refractories, ways of evaluating scrap, pouring procedures, measuring pouring temperatures, how to cure porous castings, and much more. You'll find the die casting chapter covers the molds, their use, and troubleshooting. This is some of the most practical diecasting information I've run across yet.

If you pour aluminum, you should have a copy. You're sure to learn something that will help you improve your work. Order a copy. 5 1/2 x 8 1/2 softcover 253 pages No. 4597 \$9.95



TREATMENT OF LOW-CARBON STEEL

reprinted by Lindsay Publications

You'll learn about the properties of low-carbon steel, see how it is made in Bessemer and open-hearth furnaces, the defects that can occur in ingots, how thermit is used to prevent "piping", what nickel steel is, and more. You'll learn about annealing low-carbon steel in a variety of furnaces and the effect of oil-tempering.

You'll find many sections on case-hardening: theory, packing materials, cyanide hardening to resist wear, hardening tools with potassium cyanide, and the case-hardening of small and large work. Discussed are soft spots, hard spots, use of old bone, packing to obtain colors, cooling work to obtain colors, producing temper colors on case-hardened work, and case-hardening equipment including boxes, cooling baths, and a variety of furnaces. One last section briefly discusses bluing steel.

Great reading for blacksmiths and machinists. Excellent illustrations and easy-to-read text from 1906. Low price! Get a copy. 5 1/2 x 8 1/2 booklet 37 pages No. 20749 \$3.95

Cast Objects of Beauty

ORNAMENTAL METAL CASTING

by Robert Whitmoyer

Melting metal and pouring castings is an extremely valuable skill when designing and building machinery. But casting metal can be a whole lot more than that!

Whitmoyer will show you how to take Gingery's charcoal furnace and push it into new areas. You'll learn how to build and operate a charcoal furnace capable of melting 2 1/2 quarts of aluminum. You'll learn how to make a beautifully simple, yet easy-to-handle crucible, flasks, a molding table, and all the other components you'll need.

You'll learn how to mold and cast plaques, a sundial, solid figurines, penny bank replicas, and a large fountain that would cost you a fortune to buy.

One of the strongest points of this book is the info on lost wax casting techniques. You'll learn simple techniques of using plaster-of-Paris to make incredibly detailed cast-

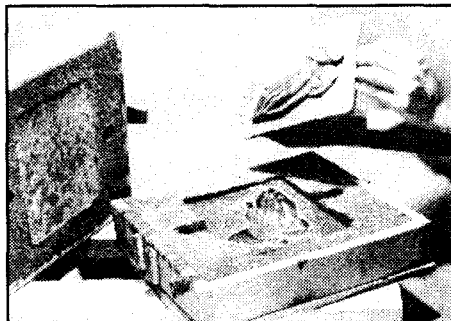
ings. Wait until you get a good look at the chess set he cast! Beautiful work!

If you love casting metal, you must get a copy of this. It will round out your

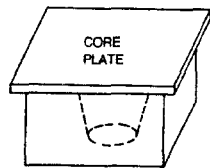
abilities and will enable you to cast objects that might be a whole lot easier to sell than something like indexing heads. In other words, the skills here could make you some money on the side. Excellent book! Loaded with photos and drawings. Great how-to! Get a copy!

5 1/2 x 8 1/2 softcover 92 pages No. 4430

\$9.95



Sand Casting



COMPLETE HANDBOOK OF SAND CASTING

by C. W. Ammen

Let Bill Ammen with his more than 35 years experience show you how to make professional castings with sand molds. Learn about molding, sand mixes, tools, mold making equipment, patterns, cores and core boxes, bench molding, floor

molding, gates, sprues, risers, proper gating design, non-ferrous melting furnaces using coke, oil, and gas, and a 12 inch cupola furnace that can melt more than half a ton of cast iron per hour.

Here's solid, advanced information for the guy who wants to improve his castings and move on to more complex fields. Ammen also comments on starting a foundry business.

Good book. Thousands have already been printed and sold! 5x8 paperback 238 pages well illustrated

No. 116

\$15.95

Foundry Patterns for Machines!

MACHINERY PATTERN MAKING

by P. S. Dingey

reprinted by Lindsay Publications

It's easier to shape wood than metal. Put your efforts into building a quality wood pattern, and use it to cast the metal part you need for that special machine you're building. Maybe you could even sell castings to other machinists.

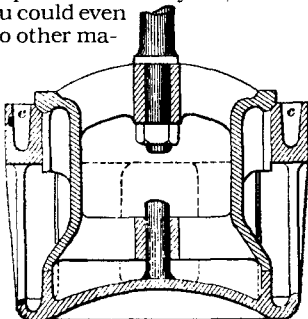
You get Dingey's secrets on making patterns for printing press cylinders, fly wheels, worm wheels, plug valves, propellers, Corliss engine cylinders and much more. And what is even better, you'll find 417 great engravings to show you how. This is a gem of a how-to book.

If you cast machine parts, get a copy of this. The text is good, but the illustrations are worth the price of the book alone. Make your engines look professional. Save yourself hours of needless machining. And make parts that would be very difficult to fabricate from weldments.

Excellent 1898 book. Order a copy! Recommended. 5x7 softcover 208 pages 417 engravings

No. 20390

\$8.95



HOW TO BUILD A FORGE

by David Wimberley

Let Dave Wimberley show you how to convert a standard water heater shell and old vacuum cleaner into a quality blacksmithing forge for very little money. This 20" diameter firebrick-lined design requires no welding and has a hood that with careful installation will allow you to operate the forge indoors without asphyxiating yourself.



Build a Dave Wimberley Forge

Dave will show you how to use standard plumbing fixtures to pump in the air blast. He'll show you how to line the steel basin with firebrick and how to lay out the conical hood. He'll even show you how to make a refractory fire cover that makes the forge safer and more convenient to use. The only special tool you'll need is an abrasive cutoff blade for your power circular saw.

Here's an excellent proven design presented in an easy-to-understand fashion with excellent drawings and photographs. Set up a blacksmith shop and pound iron! Excellent plans! Order a copy today! 5 1/2 x 8 1/2 booklet 15 pages

No. 845

\$4.50

MACHINE FORGING

MACHINE FORGING

reprinted by Lindsay Publications

Learn about the three classes of forging machines: rolls, drop hammers, and presses. You get discussions of rolling bars, rolling plates, graded rolling, rolling with dies, rolling rifle barrels, special graded rolling, screw-thread rolling, and a very brief description of bending rolls.

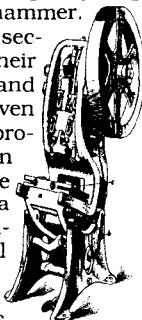
You'll read about a board drop hammer, crank drop hammer, a strap and pulley drop press, and a steam drop hammer.

Next, you'll find a number of sections on drop hammer dies, their materials, fastenings, forms, and examples of their work. You'll even get valuable information on providing an adequate foundation for such a hammer. You'll see lever shears, a vertical shear, a vertical punch press, an inclined press, and a horizontal "bulldozer."

Excellent illustrations and easy-to-read text from 1906. Low price. Valuable reading for the blacksmith who is looking to power tools to expand his capabilities. Get a copy. 5 1/2 x 8 1/2 booklet 34 pages

No. 20781

\$3.50



ELEMENTARY FORGE PRACTICE

by Robert H. Harcourt

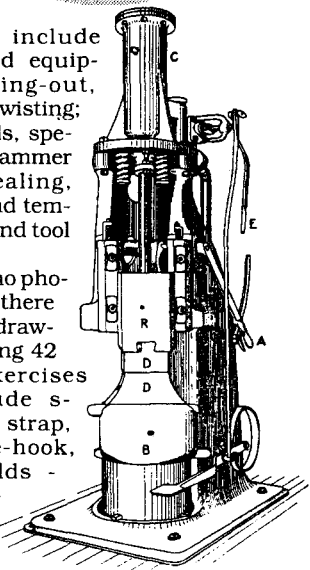
reprinted by Lindsay Publications Inc

Yes, another blacksmithing book. This one from 1917. And it's a good one. How do I know? The original was so incredibly filthy throughout, that the printer's photographer was sent to a sanitarium to recover after copying it. It was used. And used. And used.

Robert Harcourt's Elementary Forge Practice

Chapters include materials and equipment; drawing-out, bending and twisting; common welds, special welds; hammer work; annealing, hardening, and tempering steel; and tool forging.

There are no photographs, but there are detailed drawings illustrating 42 different exercises which include s-hook, beam strap, twisted gate-hook, practice welds - fagot, ring - round lap weld, common eye-bolt, angel weld, forged open-end wrench, flat-jaw tongs, link tongs, cape chisel, cutting-off tool,



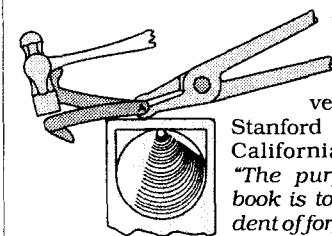
threading tool, cross-peen hammer, ball-peen hammer, geologist's pick, machine rock-drill and more.

The author was an instructor in forge practice at Leland Stanford Junior University - part of Stanford University in California. He wrote "The purpose in this book is to give the student of forge practice an understanding of fundamental operations employed..." This was the textbook he used to teach blacksmithing. It's brief, to the point, and informative.

Yes, it covers some of the same materials as other smithing books, but every book is slightly different. Check out some of the illustrations here, and see what you think. I think it's good and should be made available. Consider it. 5x7 softcover 148 pages

No. 21699

\$8.95



HOW TO MAKE A BLACKSMITH BELLOWS

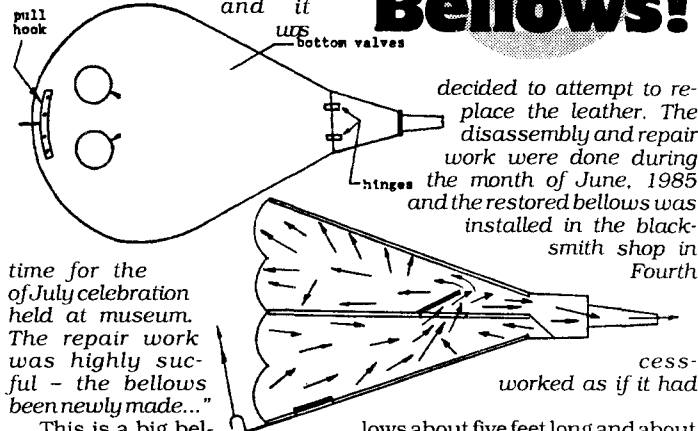
by Robert M Heath

From the introduction:

"The blacksmith bellows described in this booklet is located in the Agricultural and Forestry Museum in Jackson, Mississippi and was donated to the museum in 1973 by Mr. A.P. May who lives in Brandon, Mississippi. It was made by his father in 1910 and used on his farm until 1938. The bellows is the largest of three that were in storage in a shed at the museum. In the summer of 1985, it was taken out of storage for use in the blacksmith shop at 'The Living Village, circa 1920' adjacent to the museum.

The leather had deteriorated so that it was no longer serviceable, and it

Make a Bellows!

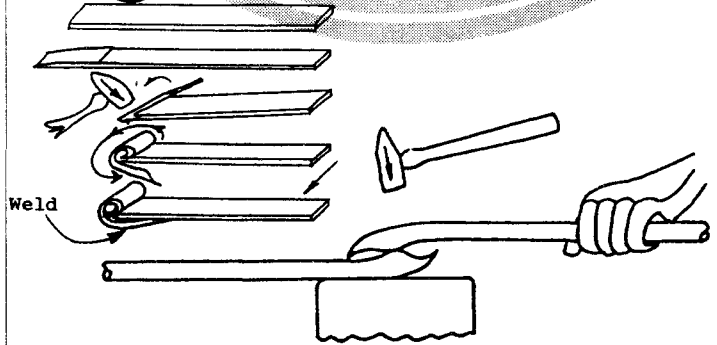


time for the of July celebration held at museum. The repair work was highly successful - the bellows been newly made..."

This is a big bellows about five feet long and about three and half feet wide and is divided into two sections. Pulling up on the lower section forces air into the upper reservoir and out of the snout and into the tuyere. The reservoir smooths out the air blast pulses into a far steadier blast. You get dimensions, construction details and plenty of illustrations. This is the same bellows booklet we offered a couple of years back. A homespun publication, but good. 5 1/2 x 8 1/2 booklet 26 pages No. 1249

\$5.50

Forge Weld on an Anvil!



HOW TO FORGE WELD ON A BLACKSMITH'S ANVIL

by Robert M Heath

"For those who have diligently tried and failed."

Forge welding can be difficult and downright frustrating, but is a necessary skill you must learn if you ever hope to consider yourself a master blacksmith. Heath will walk you through the theory and the practical techniques.

You'll learn how to flux, how to recognize the signs of iron hot enough to weld, how to "pop the weld" and much more. He'll explain the "wet look method" used by expert blacksmiths who rarely miss a weld. You'll learn to prepare scarfs to make a strong lap weld. Also covered are the secrets of welding layers of steel to achieve simulated Damascus steel. If you make knives, you may want to try scarfing the steel layers before welding them into a billet. Heath will show you how to make chain and more.

This is a quality booklet published by the author who is not only knowledgeable in theory and technique but in the history of metal-working as well. Originally, this information was taken from his book *Quest for the Indian Trade Gun* and was improved and expanded to become this great booklet. If working the black metal is your first love, consider this by all means. 8 1/2 x 11 booklet 52 pages No. 1378

\$9.95

Quest for the Indian Trade Gun

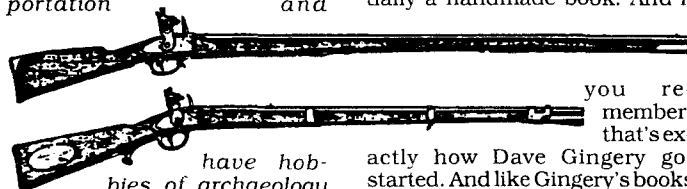
QUEST FOR THE INDIAN TRADE GUN

by Robert M Heath

"I am a civil engineer with the Mississippi Department of Transportation and

of the day.

Here you get a book published by the author himself. It's typewritten, and the binding is side-sewn by hand. It's essentially a handmade book. And if



have hobbies of archaeology and blacksmithing... We use to visit with the archaeologists from Harvard who were down here digging up Indian mounds..."

What do you think often turned up in burials? Right. Muskets! And Heath with his insatiable curiosity started researching the history, metallurgy, and the archaeology of English and French guns that were traded to the American Indians. But the author went one step further, and that sets this book apart. He set out to reproduce the gun barrels using blacksmithing techniques

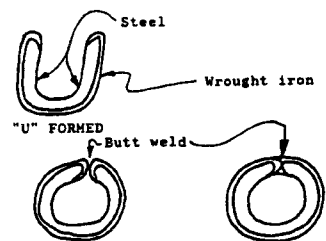
you remember, that's exactly how Dave Gingery got started. And like Gingery's books these contents are fascinating, that is, if you're interested in metallurgy, blacksmithing, and/or firearms. You get history of iron smelting, discussion of crystal structure, hardening and tempering, forge welding, and you get barrelmaking discussion in the last third of the book. And much more. There are no photographs, but you do get many illustrations. And you get details, details, details.

This is NOT a how-to manual. You will NOT be shown how to build firearms.

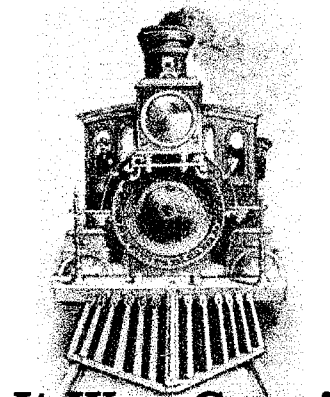
Again, this is not

"slick". You get the feeling that this is some secret information not widely available. And that might be the case. This isn't for everyone. The author is trying to find ways to get large quantities of this book printed to make it more widely available. He may or may not be able to do that. If not, this may remain an obscure, hard-to-find publication. Take time to think about whether or not this something you need in your reference library. Very reasonably priced considering the limited supply and unusual information it provides. 8 1/2 x 11 side-sewn 269+ pages No. 1379

\$20.95



BUTT WELDING SEQUENCE



It Was Gone!

"Dear Lindsay

In Denver a couple of years ago I found an original copy of *Modern Locomotive Construction* at \$175.00. After I had convinced myself I deserved it, I went back and it was gone! When I found it listed in your catalog I stopped to fill out the order form before I finished the rest of the catalog. This one is well worth the price.

I got a copy of *Locomotive Valves and Valve Gears* a couple of months ago. It's excellent."

Dick Morris

Blacksmith Shop & Iron Forging

**BLACKSMITH SHOP
AND IRON FORGING**

reprinted by Lindsay Publications

Blacksmithing is the forging of iron with simple tools — the same forging process carried on today with enormous presses and dies.

There are a great many books that will show the usual blacksmithing projects, but have you ever made a bolt head by welding on a ring? Have you made a rocker arm? How about a steam locomotive reverse shaft? Or a rudder frame?

Besides these rare topics, you get a complete discussion of blacksmith shop equipment: the forge, tuyeres, bellows, hood, chimney, fuels, anvil, all types of hammers, chisels, and all the rest.

The second part will teach you about the making of cast and wrought iron and basic operations of forging. You'll make an eye hanger, gate hook, and other educational projects. You'll learn how to weld and make a small chain and tongs.

Although blacksmithing today is almost a fine art, it was once a basic machine shop skill needed in day-to-day operations. This 1906 technical school textbook will teach you both the basics and new tricks. Excellent book. Great illustrations! Inexpensive! Order a copy today. 5 1/2 x 8 1/2 softcover 96 pages

No. 4074

\$7.50

Elementary Forge Practice

ELEMENTARY FORGE PRACTICE

by John L. Bacon

reprinted by Lindsay Publications

Forge practice is metal working at its most basic level: heating, shaping and hardening. With it you can turn steel stock into boring bars, pliers, hammers and other useful tools.

Chapters include a general description of forge and tools, welding, calculation of stock for bent shapes, upsetting, drawing out, bending, simple forge work, calculation of stock and making general forgings, steamhammer work, duplicate work, metallurgy of iron and steel, tool-steel work, tool forging and tempering, and more. You get a number of tables and many pages of plans for useful learning projects: forge shovel, poker, C-clamp, bolt tongs, cold chisel, center punch, lathe

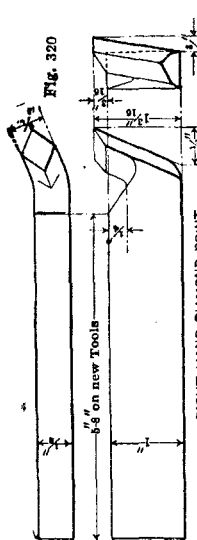
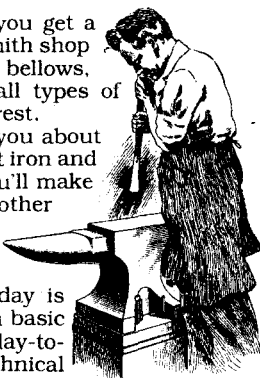
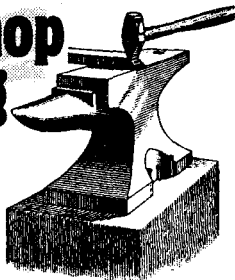
cutting tools, scraper, hammers, and more.

You can make hammers, harden the faces, use a steam hammer with jigs and dies to make duplicate work, forge and grind lathe tools and much more. You learn skills that can save you money. A lot of this material is advanced 1908 "high-tech" material being used in industry not usually found in craftsman type books.

If you're new to forge practice and/or blacksmithing or want more than the usual beginner's books, order a copy of this. You'll like it. 5 1/2 x 8 1/2 softcover 288 pages

No. 4457

\$10.95



FORGE WORK

by William L. Ilgen

reprinted by Lindsay Publications

Ilgen taught at Crane Technical High School in Chicago in 1912 and produced this gem of a blacksmithing textbook.

Chapters include: tools and appliances, forging operations, practice exercises, treatment of tool steel, tool making and stock calculation, steam hammers, art smithing and scroll work, preparation and smelting of iron ore, manufacture of iron and steel, and formulas and tables.

You'll learn about the straight peen hammer, chisel tongs, the hot cutter, the flatter, the heading tool, swage block and so on. Then you'll learn hammer blows, upsetting, twisting, butt welding, and the other necessary smithing skills. For practice you'll make a draw spike, gate hook, square-corned angle, welded ring, chain swivel and so on.

You'll learn annealing, hardening and tempering, use of the steam power hammer, circular cutter, trimming chisel, spring fullers, and more. Learn the basics of decorative iron work. Make an a Jardiniere stand, umbrella stand, andirons and more.

Excellent book! Lots of drawings and a number of interesting, but somewhat "muddy," photos. A book worth having. Get one! 5 1/2 x 8 1/2 softcover 210 pages

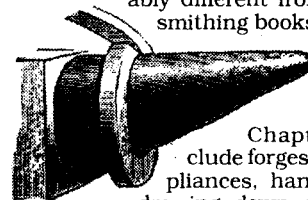
No. 21206

MANUAL OF BLACKSMITHING

by John R. Smith

reprinted by Lindsay Publications

From 1902 comes yet another blacksmithing manual. But a glance will convince you that this is noticeably different from other smithing books.



Chapters include forges and appliances, hand tools, drawing down and upsetting, welding and punching, conditions of work: principles of formation; bending and ring making; examples of forged work; cranks, model work, etc.; homemade portable forges, and manipulating steel at the forge.

What makes this special are topics

Forge Craft

FORGECRAFT

by Charles Philip Crowe

reprinted by Lindsay Publications Inc

Charles Crowe of Ohio State University has returned from 1913 to teach us how us the fundamentals of working iron, of being a blacksmith, and of being an artist in iron.

Chapters include the forge, tools, materials used, formed work, hooks and chains, welding, special welds, heat treatment, tool smithing, hardening and carbonizing, tempering and an additional chapter on metallurgy.

You'll learn the basics of bending and welding stock into rings, drawing tapers, forging a corner, and much more. You'll find these same lessons in other books, but here you get action photos taken with the work on the anvil. You'll learn what constitutes the design of a good hand forged chain hook and how to make it. You'll see how unusual welds are used in a forged swivel, a hook with eye, a square socket wrench and more. Study the photos and watch two professional blacksmiths forge a cutting tool for a large lathe. That's something to see.

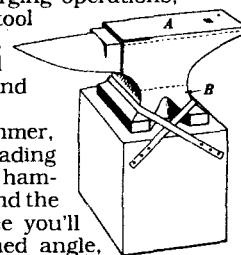
Numerous photos, samples of unusual pieces of work, and the professional tone of the text are the strengths of this book. Excellent. I had no doubts about reprinting it when I first saw it. Get a copy.

5 1/2 x 8 1/2 softcover 175 pages

No. 21087

\$9.95

FORGE WORK



Manual of Blacksmithing

\$9.95

generally not seen in other books. For instance: an illustration of "Elevation of Appliance for Rounding Bolt Heads" and "Apparatus for Lifting Heavy Forgings". You'll see a machine for bending iron strap, and leveling block with screw, a leveling block with bending templet, a jig for producing a bent crankshaft, and details on building two different portable forges including construction details on the two-stage foot-operated bellows, and more.

This book glosses over the basics and throws interesting hardware at you. Great illustrations. If you spend hours at the forge or are preparing to, this is worth having. Get a copy. 4x7 softcover 158 pages

No. 21281

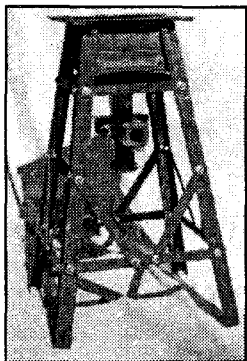
\$9.95



Build a Firepot

HOW TO BUILD A
BLACKSMITH'S FIREPOT
by Don Meador

A forge is generally a large immovable furnace that produces massive heat for blacksmithing. A fire pot is just that: a pot on legs that is movable and provides heat with a small fire to keep iron hot while it is worked. Traditionally farriers have used fire pots when shoeing horses. Even if you don't work horse shoes, the pot is useful as a small furnace for small forging projects. For instance, you might want to hammer out some steel to make homemade boring bars for your lathe. Then you'll want to harden and temper them. You can use this pot.



Meador will show you how to build a fire pot 7 1/2" square internally and 4 3/4" deep that sits on angle iron legs. Air blast is furnished by a shop vac in this case, but it certainly is not the only option. Once finished with the fire, the pot can be lifted with pliers, the fire dumped on the ground and quenched with water. You can fire it with grocery store charcoal, coal, or even coke. You'll need some muscle power to cut the angle iron, but other than that just simple tools will suffice.

This is a fairly simple project that beginners can easily build, but one that can be quite useful. You get detailed instructions and many drawings to help you. A bit expensive, but good information. Consider it carefully. 8 1/2 x 11 booklet 36 pages
No. 1363 \$10.95

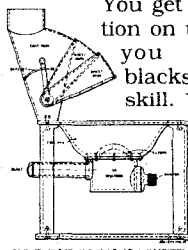
Machine Blacksmithing

Machinery Reference Series No. 44
MACHINE BLACKSMITHING
reprinted by Lindsay Publications

In this great booklet from 1910 you get five sections: system in the blacksmith shop, tools for the blacksmith shop, anvils and forges, power hammers and forging appliances, and the steam hammer and its use.

You get the usual basic information on tools and equipment, but you also get a look at blacksmithing as an industrial skill. You get practical tips on hardening and tempering, working with surface plates, vises, and power hacksaws, diagrams of dies for use in a steam hammer, and a couple of informative sections on the use of power forging hammers.

Obviously, this booklet is not going to give you an in-depth education but you'll learn new things and be entertained in the process. Get a copy. Cheap! 5 1/2 x 8 1/2 booklet 48 pages
No. 21362 \$3.95



Turning Metal on a Simple Lathe



by John F. Maloy

Maloy first saw freehand turning performed by an expert blacksmith. Nineteen years since then, Maloy has used the technique to make steam engines, small airplane engines, and a muzzle loading barrel rifling machine. He has also managed to bore a hole 44" deep free hand that was off center by only .010" at the opposite end!

Maloy will show you how to make a cutting tool, temper it with a propane torch, sharpen it, make the first pass, the second pass, finish it up, cut high carbon steel, and make additional gravers. Illustrated but less well described are constructions of a bell chuck and a face plate.

You'll find that Maloy is also a talented illustrator. You'll find a series of drawings (no text) showing how he turned the finned cylinder for a 3/4" pipe tee engine.

Get a copy. This is information that you don't often find. I think you'll be surprised by the accuracy possible! Good reading. 5 1/2 x 8 1/2 booklet 24 pages.
No. 884 \$4.00

Ancient Secrets!

ON DIVERS ARTS

by Theophilus

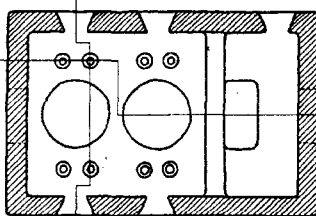
translated by Hawthorne & Smith

Theophilus probably wrote this in a Benedictine monastery in Latin on parchment about 1120, long before the printing press. What he wrote about was the creative technology of the day.

You can learn the tricks and techniques of painting, working glass, and working metal. You get details on mixing pigments for various hues, working gold and tin leaf, applying leaf to books, making ink, making glass, details of the furnace, the composition, spreading out glass sheets, making long-neck flasks, coloring glass, gutting, annealing, glass molds of iron, assembling windows and much, much more.

In metalworking you learn about anvils, bellows, hammers, engraving tools, punches, files, hardening files, crucible for gold and silver, milling gold amalgam, setting gems and pearls, refining copper, separating gold from silver and copper, and much more.

Each section is short, but gives the essential details. The original illustrations have been reproduced. Also included are photos of typical work from 1100's. This is a beautiful combination of solid technology, myth, and folklore, just as it was. An unusual book. Lost secrets! Interesting reading. Reasonably priced. 6 x 9 softcover 45 illustrations. 216 pages.
No. 160 \$8.95

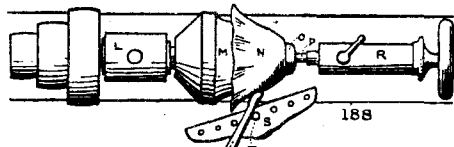


Metalworking & Enameling

METALWORKING AND ENAMELLING

by Herbert Maryon

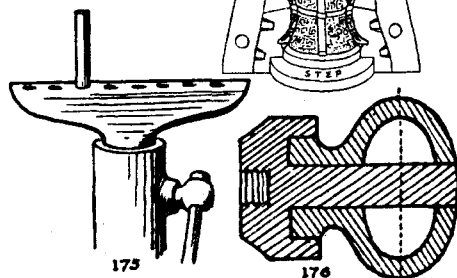
"A practical treatise on gold and silversmiths' work and their allied crafts."



"All those concerned with goldsmithing, silversmithing, rare metal objects or metal scientific instruments, or their repair or restoration, will be delighted to find this bible of their craft available again in a new edition."



Chapters include materials and tools, soldering, filigree and other small work, setting of stones, raising and shaping, spinning, repousse work, mouldings, twisted wires, hinges and joints, metal inlaying and overlaying, niello, Japanese alloys and stratified fabrics, enamelling, metal casting, construction, setting out, polishing and colouring.

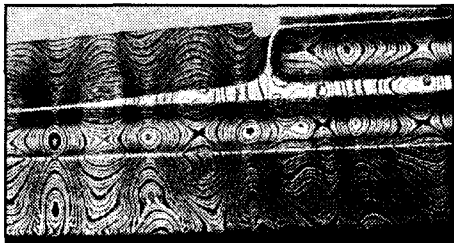


the making and sharpening of tools, design, Benvenuto Cellini, assaying and hallmarking, and tables and appendices.

Think of this as fine art metalworking. Even if you're a blacksmith pounding red hot metal, there's something in here. I'll bet, that you can use. It's loaded with practical how-to, and fairly well illustrated. A lot of book for the money. 5 1/2 x 8 1/2 softcover 335 pp 1959 original
No. 1288 \$8.95

Prices Change!

Because of escalating paper prices, book prices are changing rapidly. Some prices in this catalog may have changed before the ink was dry! Don't be surprised.



Damascus Steel?

THE PATTERN-WELDED BLADE

Artistry in Iron

by Jim Hrisoulas

From the dust jacket:

"A well-forged, perfectly welded laminated blade is a testament to the bladesmith's ability and patience. More than simply layered and twisted steel and iron, a pattern-welded blade reflects the care and craftsmanship of its maker. In *The Pattern-Welded Blade*, master bladesmith Jim Hrisoulas walks the experienced smith through the steps of creating the customary patterns of varying complexities all the way up to "undiscovered" designs waiting in the depths of the maker's own imagination.

Besides providing in-depth instruction in the creation of many basic and composite patterns, Hrisoulas explains the intricacies of welding in coal and gas forges, methods to improve flux for a better weld, secrets of working with welded cable, and tips for grinding, heat treating, tempering, and finishing the blade. Clear illustrations, beautiful photographs, and an appendix of weights, measures, and compounds round out this complete course in advanced bladesmithing.

Jim Hrisoulas is a master bladesmith with more than twenty years' forging experience. He specializes in medieval broadswords and daggers and Damascus pattern-welding. He is the author of *The Complete Bladesmith* and *The Master Bladesmith* and the on-screen instructor in *Forging Damascus: How to Create Pattern-Welded Blades*.

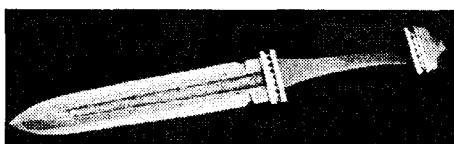
Chapters include the workshop, materials, forge welding, basic pattern for pattern-welded steel, the composite patterns, welded cable, grinding the blade, heat treating and tempering, finishing, and more.

Making pattern-welded steel is craft of unusual beauty. Although the ancients' top priority was superior blades, here the pattern is top priority. The author will show you how make blades that will amaze your friends.

Expensive book, but excellent. Delivers specialized info you won't find just anywhere. Get a copy. 8 1/2 x 11 hardcover 113 pages

No. 1390

\$35:00



POCKET KNIFE

THE HANDCRAFTED FOLDING KNIFE

by Mark K Malmros

The author will show you how to make a folding lockback knife with a carbon steel blade using simple hand tools. This is for beginners like you and me and not advanced bladesmiths.

Malmros will expose you to the necessary materials, and give you patterns for a field and stream fillet knife, the gentleman's lockback, and the Indian folder. Next, you'll cut the parts from steel and brass with a hacksaw, finishing them up with a file and sandpaper.

You'll heat treat the blade with a propane torch and assemble the parts.

Chapters include introduction; design; materials; cutting and filing the patterns; taper, slot & etch; the handle; assembling the knife; four appendices on heat treating, budget drill press, electrochemical etching, and exotic hardwoods; resources; bibliography; and patterns.

You get lots of details from various types of locking devices to etching the blade with nitric and hydrochloric acid (optional). This is a great example of a nicely done book produced on a desktop publishing system and professionally printed. The drawings are simple but attractive and quite informative.

I wish I could find more books of this quality. I think you'll like it. 6x9 softcover 112 pages No. 1399

\$14.95

Make Knives

HOW TO MAKE KNIVES

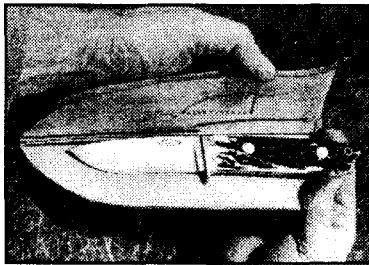
by Barney & Loveless

"...we have written this book as a textbook for readers who intend to buy tools and materials... we have fully described the two major ways of making knives, as practiced by two full-time knifemakers...

...we have discussed both the tools and materials of knifemaking very carefully in the hope that this part of the book will be most useful to the beginning worker...

Finally, we have included a complete listing of the equipment and materials sources known to us...

Chapters include: history of handmade knives, safety, making a knife by stock removal, make a sheath, making a knife at the



BE A MASTER BLADESMITH

THE MASTER BLADESMITH

Advanced Studies in Steel

by Jim Hrisoulas

"...Hrisoulas divulges the secrets that for centuries have been jealously guarded by the bladesmithing guilds. Now you too can learn how to turn out swords, axes, spears, patternwelded blades, and other knives... Master the use of exotic materials such as ivory, amber, sharkskin, mokume gane, gold, silver, and other precious stones, as well as how to use exotic patterns, techniques, and designs on more common leather, bone, and woods to turn ordinary blades into extraordinary tools and weapons.

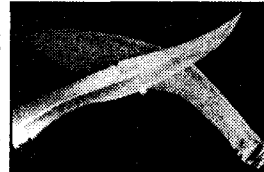
Knowing which steel to use for which blades. Knowing when to use the richer alloys and when to stick with carbon steels. Knowing how to use stainless steel for knives that will outcut any super alloy. Knowing how to make Damascus steel even more beautiful. Knowing what kind of forge and inside atmosphere to use with different blades and how to construct your own...."

Chapters include setting up the workshop, steels & alloys, advanced forging techniques, the power hammer, heat treating and tempering, hilts, metal and wood finishing, leather working & scabbard making, swordmaking; the romance of the sword, the spear; the ancient weapon of choice, axes, Japanese nonferrous alloys and their coloration, Damascus steel; the pattern welded blade, compounds and formulas, and weights and measures.

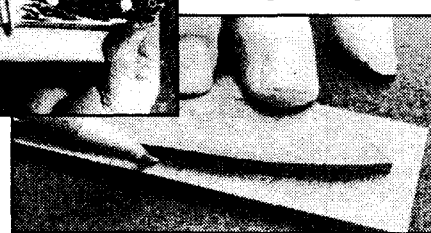
If you want to take bladesmithing into the world of fine art, this is a place to start. Big book, expensive but worth it. The blade fanatics already have a copy. You need one, too? 8 1/2 x 11 hardcover 286 pages

No. 1391

\$45.00



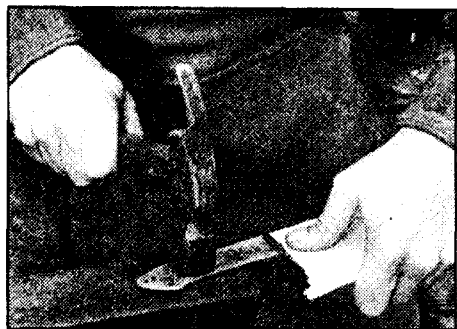
Moran forge, alternate sheath making method, how to make a knife with hand tools, flat grinding, soldering the guard, solderless guard, hidden tang, applying, scale handles, mirror polishing, tools,



materials, knife design, and sources.

Great book! Wall-to-wall photographs. Good one. 8 1/2 x 11 softcover 182 pages No. 1401

\$13.95



MAKE KNIVES!

STEP-BY-STEP KNIFEMAKING

by David Boye

Here's another lost art! Learn about the tools you'll need - torches, grinders and sanders. Learn about the many types of knives, about cutting, grinding, and heat treating the blades. Learn how to make handles, sharpen, make sheaths, and acid etch intricate decorative designs into the steel. These knives are works of art that are almost too beautiful to use. You have to see this book to believe what is possible.

This is a classic text first published in 1977 and reprinted many times. It's loaded with detailed information on what is essentially an art form. You'll really like it. A goodie. Grab a copy! 7 1/2 x 9 softcover 270 pages heavily illustrated No. 115 \$16.95



Charcoal Kiln

A CHARCOAL KILN MADE OF CINDER-CONCRETE BLOCKS

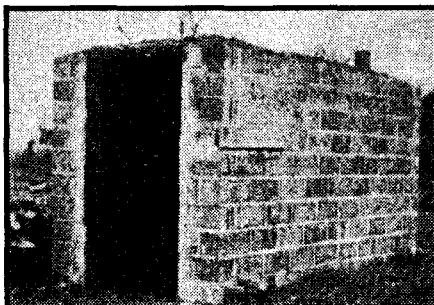
by A. Richard Olson and Henry W. Hicock
reprinted by Lindsay Publications Inc

You can melt metal with natural gas, and it's obviously far more convenient, but charcoal is the traditional fuel. And you can make your own!

You get a booklet published in February 1946 by the Connecticut Agricultural Experiment Station. These kilns were devised to turn wood into charcoal to supply the ten to twenty thousand tons of charcoal needed by Connecticut farmers back then to cure their tobacco. You can use it to produce fuel for a cupola or other foundry furnace or perhaps even a smelter!

You get complete plans and details for both a one- and two-cord kiln. A standard cord of wood is 4'x4'x8'. So you know these babies are big units, at least for the backyard foundryman. You get details on materials, the site, foundation, building the coaling chamber, building the top, and building the chimney stove. Then you learn about loading the kiln, firing, coaling, closing and cooling, and finally opening. You get tables showing typical firing times for coaling oak, maple, birch, and other dense woods.

Great booklet! Dirt cheap! Provides great information. Get a copy for your library today! 5 1/2 x 8 1/2 booklet 30 pages No. 21060 \$3.95



SALVAGE CARBON RODS

HOW TO SALVAGE CARBON RODS FROM BATTERIES FOR CARBON ARCS

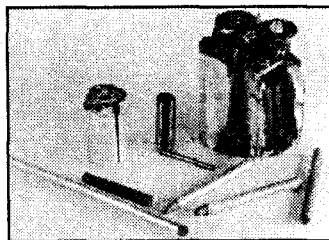
by Don Meador

Stuck in the middle of a dead flashlight battery is a carbon rod. Pull it out, and put it to use. When two carbon rods which are connected to a source of electricity come together, they arc and slowly burn. They give off enormous heat, blinding visible and ultraviolet light, and produce some really nasty toxic gases like ozone.

Carbon arcs are being phased out of print shops where they have been used for years to provide the intense UV light needed to make offset plates. Carbon arc torches are very simple to build and can produce enormous heat. Carbon arcs can melt steel, yes, steel.

Meador has already written a booklet for building a carbon arc torch. Carbon rods are becoming hard to find. Here the author will

show you how to extract carbon rods from used batteries, remove the chemicals, and insert it into a thin-wall brass tube to improve its operation.



The salvaged carbon rods are actually more graphite than pure carbon, so they have other applications as well. Meador is a graduate electrical engineer with an intense interest in metal working. It's quite possible in the future we'll see plans for carbon arc lights and a steel-melting furnace.

You must understand this is not a project you can take lightly. You're dealing with chemicals to salvage rods that can be quite dangerous if improperly used. But this is old technology used for decades. You can use it, too, if you are careful. Interesting. 5 1/2 x 8 1/2 booklet 19 pages No. 3029 \$4.50

HOW TO BUILD A CARBON ARC TORCH

by Don A. Meador

Pump a large electrical current between a slightly separated pair of carbon electrodes and you come up a 9000° F flame useful for melting metal, welding and brazing. Here Meador will show you how to build a carbon arc torch using wood, tubing and commonly available carbon electrodes. You really don't need much money or expertise to build an excellent working torch.

Build a Carbon Arc Torch!

You do need a source of high-amperage current such as an arc welder, but perhaps you could jury-rig another source such as a bank of auto batteries. (This could be dangerous, so be careful. You're on your own.) The maximum recommended amperage for a 3/16" electrode is 30 amps which is not much. On the other hand, 1/2" electrodes need up to 140 amps. But, then, what are you planning to do anyway? Braze two battle-ships together?

It's a nice little, inexpensive torch that you can assemble in a snap. Don's booklet is self-published, and it looks pretty good with photos and drawings. It's not a slick professional publication, but it does deliver. And the price is reasonable.

hole attaches the clamp ring to the threaded rod, and the other one holds a thumb screw. The clamp leaf floats freely inside the clamp ring. The thumb screw will tighten onto the clamp leaf forcing it against one side of the carbon rod. This causes the carbon rod to be pinched between the clamp leaf and the clamp ring holding the carbon rod securely in place and making a good electrical connection.

The clamp ring is made first. Cut two pieces of 3/4" square steel tubing 1/2 inch long and clean off the burrs with a file. Drill two 13/64 inch holes into the center of two adjacent sides of each clamp ring as shown in figure 10, and tap these holes for 1/4" - 20 threads. This completes the clamp ring fabrication.

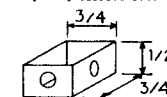


Figure 10

The two clamp leaves are a little more complicated to make. Figure 11 shows how the two clamp leaves look after they have been cut out.

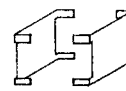
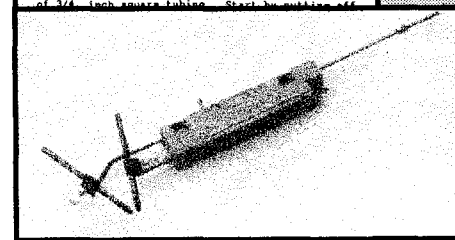


Figure 11

Both clamp leaves are made from one section of 1/4 inch square tubing. Start by sawing off



So build a torch. Use it to light up your movie lot, fry fish, or cauterize herpes lesions (although I don't think I want to be around to smell that!). You might even try using the torch to heat metal! Order a copy. 5 1/2 x 8 1/2 booklet 30 pages No. 1349 \$6.95

All Five Holtzapffel Volumes!

Incredible Early Technology Series

One - MATERIALS. THEIR CHOICE, PREPARATION AND VARIOUS MODES OF WORKING THEM

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Volume I from 1843. Covers materials; the combining of woods; how to avoid shrinkage, warping and splitting. Other more exotic materials: bone, shell, ivory, horn, tortoise are described; with explanations on how they are prepared, cut, bent, joined, molded and inlaid. Also covered are the use of amber, slate, marble, semi-precious and precious stones; the manufacture of cast and malleable iron; forging iron and steel; hardening and tempering; metal alloys most often used; casting and rounding; joining and rolling sheet metal; the various methods of soldering; and much more. 6x9 softcover 480 pages 300 illustrations.

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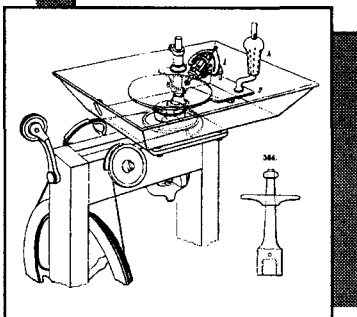
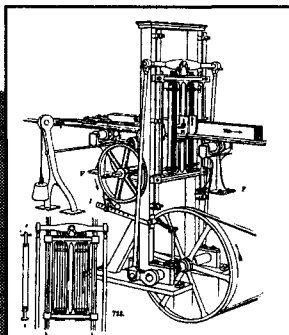
Volume II, 1846, covers the construction, action and application of cutting tools and the machines derived from hand tools. Covers types of chisels, plane irons, turning, boring, and screw cutting tools, saws, files, shears and punches, screw cutting apparatus, vises, spindles, and planing and shaping machines. 6x9 softcover 595 pages over 700 illustrations

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THREE - ABRASIVE AND OTHER PROCESSES NOT ACCOMPLISHED WITH CUTTING TOOLS

by Charles and John Jacob Holtzapffel

Processes used to reduce and shape other than with cutting tools: the shaping and polishing of stone and marble; the grinding and sharpening of cutting tools to precise forms and angles; the producing of cylindrical, spherical, conical and plane surfaces by abrasion and surface grinding; glass cutting and etching, lens grinding and polishing; the use of diamonds in drilling and grinding; sharpening and setting the teeth of saws; grinding of internal cylinders; lapidary work; gem and glass engraving; watchmaker's turning tools; varnishing, lacquering, and bronzing; and much more. An 1894 supplement adds 300



pages of revisions and 250 additional woodcuts. 6x9 softcover 816 pages. 430 illustrations

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Four - HAND OR SIMPLE TURNING

by John Jacob Holtzapffel

Covers simple lathe, division plate and index, boring collars, the slide rest, the spiral apparatus, lifting blocks and lengthening bearings; chucks and apparatus for fixing the various works in the lathe; the elementary practice of softwood turning; hardwood and ivory turning; metal turning; and screw cutting. Also example projects of billiard ball, polyhedra, egg cups, candlesticks and much more. 1881 6x9 softcover 592 pages 771 figures

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Five - ORNAMENTAL OR COMPLEX TURNING

by John Jacob Holtzapffel

Ornamental turning describing the various cutting frames and chucks, the ornamental sliderest (with additional appliances for fluting, angling, etc., and overhead motions); vertical, horizontal, universal and internal cutting frames; the drilling instrument and the eccentric, elliptical, epicycloidal and rose cutting frames; the spherical or dome chuck; the segment plate and stops; eccentric and oval, straight line and rectilinear chucks; and the spherical rest. Numerous projects of incredible intricacy and beauty. More than 600 illustrations. 6x9 softcover 656 pages

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Cast Iron Welding

CAST IRON WELDING

by Tin Man (Kent White)

Welding cast iron can be difficult. But if you know the secrets not only can you weld cast, you can do an excellent job.

White talks about having worked and learned at Harrah's auto museum in Reno with Lane Plotner in the early 70's. Plotner had repaired the engine of the only known Bugatti Royale. The engine had a single head, individual cylinders, an aluminum jacket, and an oil pan. A thrown

rod had shattered one of the cylinders. Plotner gathered up the pieces from out of the pan and welded the cylinder back together. The engine was reassembled, checked for leaks, run for a short time and then shut off. It was an amazing accomplishment.

You learn to weld with a torch and with arc on gray iron or ductile, but not white cast (can't be welded), or nodular iron (well

documented elsewhere).

As an example White repairs a V12 Lincoln manifold with two cracks. You'll learn how to clamp it down to prevent distortion, make up your own filler rod from old piston rings, grind out the crack, and weld it up. He'll also show you how to do it with commercial rod.



deadly "tink." Watch him arc weld a reproduction Model-A manifold with nickel rod. Learn how to preserve a machined surface while you weld the casting. And more!

About half the tape is done under lenses as he welds and talks. There's much to learn. Let Tin Man teach you. Good tape. Get one. About an hour and a half. VHS NTSC only.

No. 1402 \$39.95

WELD ALUMINUM

GAS WELD ALUMINUM

by Tin Man (Kent White)

These days White mostly professionally restores rare sports cars such as the Cooper, Porsche, Aston-Martin, Cobra, Ferrari, all having aluminum bodies. They get crumpled, and the bodies need rebuilding. White has become, out of necessity, an expert at welding thin aluminum panels together.

He'll show you the techniques using flat sheets of .040, .050, .063 aluminum he has cut and clamped to the bench top. You'll learn how to flux, tack, fill, and fill holes. You'll watch him remove the minor imperfections on his incredible home-built English wheel or "silent hammer." You'll learn what alloys can be welded, how to prepare flux, clean the finished, hot weld to prevent distortion. He'll show you how to join to vertical curved

panels he made on his English wheel as an example of welding on an autobody.

White will tell you if you have never gas welded sheet metal, start with steel. Then go to aluminum.



minum, probably .063. Aluminum melts at much lower temperature and distorts readily. Most auto bodies are .050, with the high end performers

being .040. And .040 can be tough to weld without blowing holes. But he sure does a great job. And he'll show you how.

Another great Tin Man video with plenty of action, tips, secrets, and shop wisdom. Even if you only watch the tape once, you'll get your money's worth the first time you fire up the torch. Get a copy. About an hour and a half. VHS NTSC only

No. 1403 \$39.95

MODEL ENGINE CONSTRUCTION

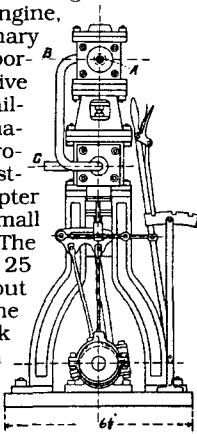
MODEL ENGINE CONSTRUCTION

by J. Alexander

reprinted by Lindsay Publications

If you're looking for projects to build, you'll enjoy this reprint. Originally published simultaneously in London and New York in 1894, this unusual book contains thirteen chapters: tools, boilers and fittings, the steam engine, fitting up the engine, reversing gears, stationary engines, traction and portable engines, locomotive engines and tenders, railway cars, compound marine engines, engine proportions, patterns and castings, and the last chapter covers a hot-air engine, small power engine, and notes. The illustrations from the 25 large and crumbling foldout plan sheets glued into the back of the original book have been reprinted on pages following the text.

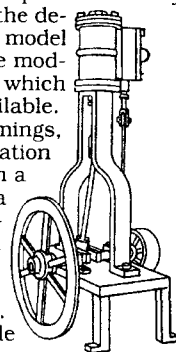
You can build for instance, a beam engine



with a 5/8" bore and 7/8" stroke with a 3 1/2" flywheel. The plans for the traction engine locomotive, marine engine, and the rest are of comparable size.

You must realize, of course, that each project could be a whole book rather than a chapter as it is here. The plans are fairly detailed but not quite to the degree you see in modern model magazines. Many of these models are based on castings which are not commercially available.

Despite these shortcomings, there is a wealth of information and ideas for the guy with a lathe itching to build a working model, particularly a live steam model. A bit on the expensive side, but it's a big book and it delivers hard-to-find info. The original was so brittle we had a devil of a time re-printing it. 5 1/2 x 8 1/2 softcover 360 pages loaded with illustrations. Order a copy. No. 4449 \$15.95



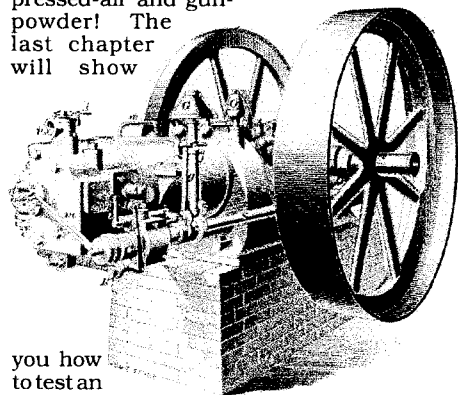
SECRETS OF ONE LUNG ENGINES!

GAS ENGINE SECRETS

reprinted by Lindsay Publications

The first 1897-98 magazine article is quite general explaining the basic engine theory you've known since grade school. But then you explore a one-lung engine with slide valve, poppet valves, ignitions systems, and more. You'll see how to turn coal into producer gas for powering gas engines. This is similar to the process for gasifying wood. Then you explore two-cycle engines, the Clerk Engine, vertical engines, a valveless engine, and an early carburetor.

Next examine ignition systems: flame ignition, hot-tube igniters, and electrical types. Timing, oilers and mufflers are discussed. A whole section discusses governors, and another covers starting an engine with compressed-air and gun-powder! The last chapter will show



you how to test an engine on a homebuilt prony brake, and more.

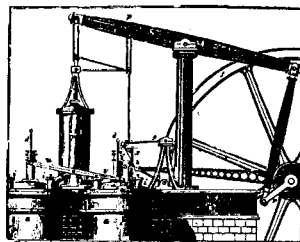
Anyone who collects and restores old engines, or who builds replicas should enjoy this. Beautiful engravings and drawings. Great reading at a low price. Get a copy! 5 1/2 x 8 1/2 booklet 36 pages No. 897 \$4.50

Old Engine Data

Mechanics Notebook 14 GAS & AIR ENGINES

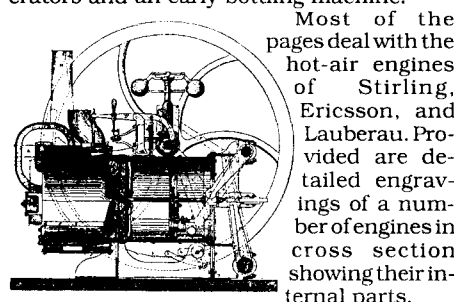
reprinted from "Engineer's & Mechanic's Encyclopedia" 1835

You get pages covering Brunel's carbonic acid gas engine, Cecil's gas vacuum engine, air pressure engines of Papin and H a g u e , pneumatic transport of Vallance, air motive engines of Stirling and Parkinson & Crossley. Rare, early material. 5 1/2 x 8 1/2 booklet 21 pages No. 886 \$3.00



Mechanics Notebook 22 CARBONIC ACID GAS & AIR ENGINES

reprinted from Appleton's Cyclopaedia 1880 The first few pages covers production of carbon dioxide, primarily for making soft drinks. You numerous illustrations of generators and an early bottling machine.



Most of the pages deal with the hot-air engines of Stirling, Ericsson, and Lauberau. Provided are detailed engravings of a number of engines in cross section showing their internal parts. Nicely illustrated. 5 1/2 x 8 1/2 booklet 14 pages No. 842 \$2.75

CASE STEAM ENGINE MANUAL

CASE STEAM ENGINE MANUAL

by J. I. Case Co.

Learn to run a World War I Case steam traction engine from this well-illustrated reprint. Chapters include: fitting up and starting a new engine, the feed water, firing with various fuels, lubrication and bearing adjustment, handling the engine, the engine proper, the valve gear, the boiler traction gearing, and the compounded engine.

Learn how to use "gage" - or "try-" cocks, how to start a Penberthy injector and what to do if it fails to work, how to pack the water-glass, how to pack a gear driven injector pump, how to regrind check valves, how to fire with low-grade coal and straw, how to adjust connecting rod brasses, details on rebabbiting main frame bearings and upper cannon bearing, and lots more.

If you're into steam, get a copy of this. It's interesting and low cost. Excellent buy. 5 1/2 x 8 1/2 booklet 70 pages No. 1260 \$6.00

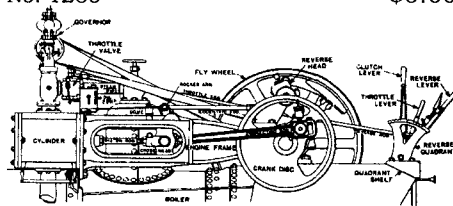


FIG. 23. SIDE ELEVATION OF ENGINE PROPER

Build a Hit & Miss Engine

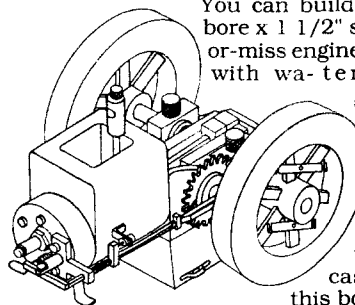
HIT & MISS ENGINE PLANS!

by Harold Depenbusch

When I picked up the phone, Dave Ginery started telling me how I should offer these plans, that they were some of the best he had seen. After I saw a copy of the plans booklet, I agreed. They're good.

You can build a 1 1/8" bore x 1 1/2" stroke hit-or-miss engine complete with water-jacket, governor, fly-wheels and everything else without the use of castings. In this booklet you get typewritten how-to in the first half with all the construction drawings in the back. You'll learn how to make the base, the cylinder, oiler, water jacket, flywheels, crankshaft, main bearings, heads, valves, con rod, rings, cam, governor parts and all the rest.

Again, these plans are excellent. The book format is not all that professional, but the info Depenbusch delivers sure is. If you like to build models, I highly recommend this! 8 1/2 x 11 stapled booklet about 40 pages. No. 1252 \$15.95



ATKINSON CYCLE ENGINE

All Four Cycles in One Revolution! Build One!

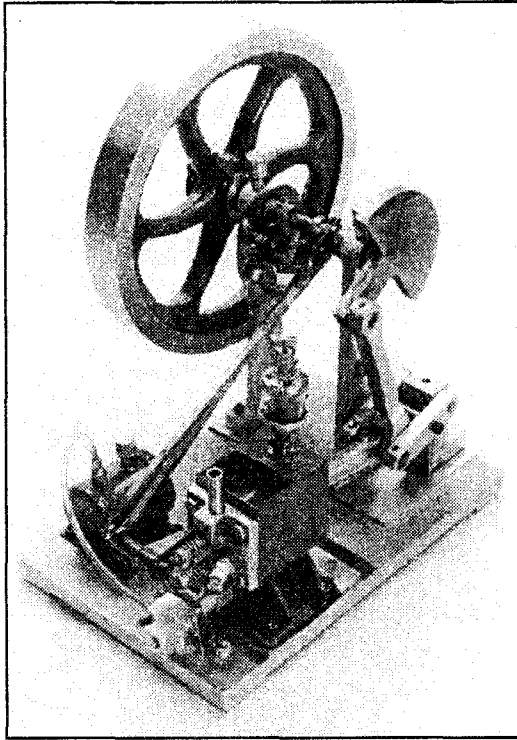
BUILDING THE ATKINSON "CYCLE" ENGINE

by Vincent Gingery

Now here's an unusual engine you can build. Vince's description from the backcover tells the story:

"Build the rare and unusual Atkinson Engine from the 1880's. It had to be an unusual engine. After all, Atkinson was competing in the expanding small engine market against Nicholas Otto's newly developed four-stroke engine. Otto held numerous patents that virtually eliminated all competition. To avoid infringement, Atkinson was forced to create a completely new approach to internal combustion. When you build his engine, you'll quickly appreciate how creative Atkinson was.

We have found that wherever we show this engine, people are amazed and fascinated by it. They ask... Where are the timing gears? What about a separate cam shaft? How does it run? How can it



complete four cycles in a single revolution of the crankshaft? Are you sure it's not a two cycle engine?

We smile and explain that the secret lies in the unusual design of the crank linkage which, believe it or not, allows the exhaust, intake, compression and power strokes to be completed in one revolution of the crankshaft. The cams are located on the crankshaft eliminating the need for timing gears and cam shaft. Simplicity adds elegance to innovation.

Inside this book you get step-by-step instructions showing how to build an Atkinson "Cycle" engine designed and perfected by Jim Lewis. Castings are suggested for the base, flywheel, cylinder head and crank linkage, but none of these parts are so complex that they could not be made from stock material. Other parts are readily available, and suppliers names and addresses are provided to make it even easier. A lathe, milling machine or milling attachment and other tools one would expect to need in a project of this type are required.

Building the Atkinson "Cycle" engine is well worth the time and trouble. You will discover that nothing quite compares with the satisfaction of machining inert pieces of metal into engine parts, assembling them, and then watching a living, fire-breathing internal combustion engine come to life.

You can be sure that very few people have a running version of an Atkinson engine, let alone one they

can claim they built themselves. This engine will be something you can be proud of. You'll really enjoy showing it off to your friends."

You get the typical Gingery detailed drawings and text for making the patterns, machining the castings, and assembling the engine.

I saw the prototype run. Interesting engine, to say the least. And one you can build. This is the first of a number of Gingery engine books, so get a copy and build this while the others are being written. 8 1/2 x 11 softcover 94 pages No. 1400 \$15.95

TECHNICAL DETAILS

The flywheel is an aluminum casting and weighs about 3 pounds. Its finished diameter is 8-3/4". The 7/16" crankshaft is held in place by two aluminum cast support pillars. The ignition points and condenser are from a late 1970's Ford V-8 engine.... An ignition cam mounted on the crankshaft opens and closes the points. The intake and exhaust cams are also mounted on the crankshaft.... The crankshaft bushings are lubricated by grease cups.

The drive linkage consists of the crank throw, the connecting rod, the piston rod, the pivot post and the pivot arms. The crank throw is made from 3/8" H.R.S. and is brazed to the end of the crankshaft.... The connecting rod is an aluminum casting and it pivots from the end of the crank.... The pivot arms are made from aluminum bar stock. The pivot bushing is lubricated with a grease cup and the piston rod is lubricated with oil by means of oil holes at the piston connection and the crank connection. The piston measures 1-1/4" in diameter and is made from 1-3/8" aluminum round stock. The piston rings used are 1-1/4" and are made from cast iron. The cylinder is made from 1-1/2" cast iron round stock.

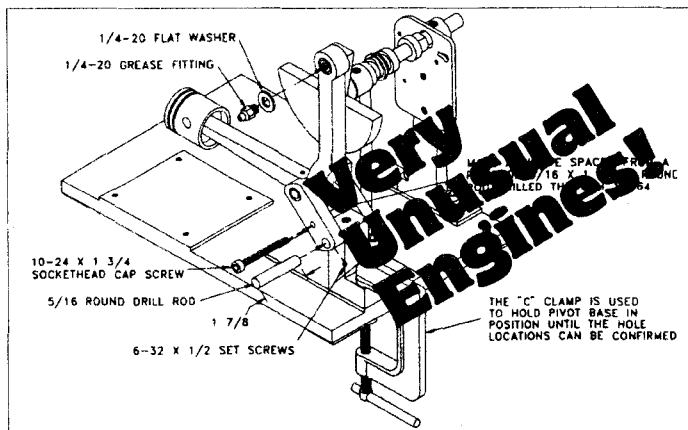
A water jacket is built around the cylinder and is constructed of 1/8" sheet steel. The water jacket is filled with antifreeze and helps keep the engine cool.

The cylinder head is an aluminum casting and is bolted to the end of the water jacket. It is drilled and tapped for a spark plug, valves, carburetor and exhaust.

The carburetor design is similar to those used on model airplanes and boats. The fuel flow is controlled independently by an adjustable needle valve. The air intake is controlled by an adjustable throttle barrel. The two are tied together so that when the throttle is opened the needle valve also opens slightly letting in more fuel for increased speed. The idle air mixture is also adjustable.

The gas tank is made from a short length of 2" diameter exhaust pipe... We use the same type of fuel to power the engine as is used in lanterns and camp stoves.

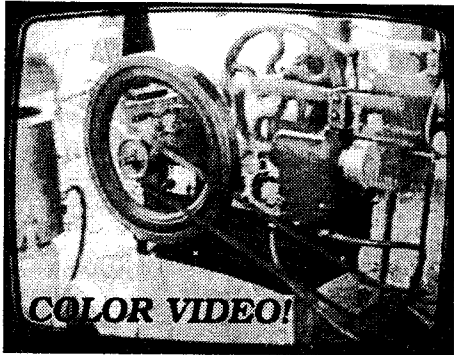
All of the components of the engine are mounted on a cast aluminum base measuring 10-5/8" x 7-1/8"....



AN INTRODUCTION TO HOT AIR ENGINES

by Bob Bailey

Ooh! Ahh! What a video! You'll see one hot air engine after another. And almost every one is running full tilt.



Bob Bailey's Intro to Hot Air Engines

You'll see old engines like Stirling fan engines, Rider engines, Ericsson pumping engines, Bremen Silent engines (only 16 known to exist), a very rare 1902 Slocum, and many more. It's one engine after another - on and on and on.

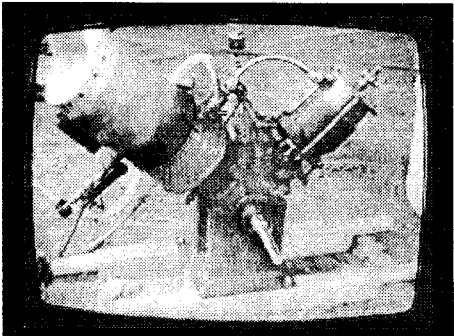
Just about the time you think the tape is over, Bailey takes you to Andy Ross's shop to see his 20cc gamma engine and a 90cc Stirling engine with magnetic coupling. These engines (some patented) can be seen in his book. But you **MUST** see them run. And you have to see the engine parts lying around Andy's shop. Amazing!

Visit with Ron Steele. He'll fire up a four cylinder engine and run it at 800 rpm at 800° F. Then he jacks up the temperature to 2000° F with a torch. That gives about 1500 rpm. When he pressurizes the engine with 20 psi, you have got to see what happens! He even takes the engine apart to show you what's inside.

Bailey will take you to the big engine meets at Wyandotte MI and Lake Itasca MN to see incredible hot air engines, some restored, some models, and others of unique design. See a running liquid piston engine built by Neal James. See Ken McCabe's engine built from an auto air conditioning compressor. See some fantastic engines built by Ole Berge. And on and on it goes.

If you like engines, get this. If you want to feel like a raw beginner (no matter how skilled a machinist you are), get this. If you think hot air engines are wimpy, **GET THIS!**

Great stuff. About 80 minutes of wall-to-wall engines. VHS, NTSC format only. Get a copy. You won't be disappointed. Excellent! No. 1396 \$33.95



NAMES 1995

North American Model Engineering Society



1995 NAMES VIDEO

produced by Bob Bailey

Tour the North American Model Engineering Society's (NAMES) 1995 meet at Wyandotte MI. If you were there, this is what you saw.

You'll see models of 18 cylinder airplane engines, a huge DC-3, ocean freighters, sternwheelers, steam fire engines, merry-go-rounds, clocks, machine tools, Stirling engines, auto engines, stationary engines, and more than I can possibly describe here.

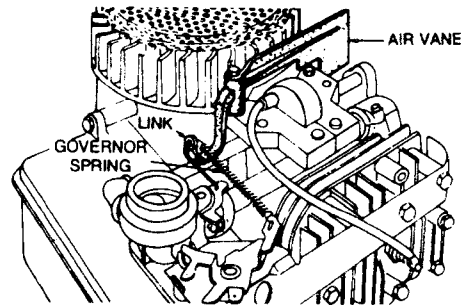
You have to see and hear some of the model engines run: a Model A Ford four cylinder, a '32 flathead V8, an Offenhauser, inline four cylinder aircraft engine, the radial aircraft engines, and more. You've got to see the footage of the red-hot pulse jet in operation, as well as the geared Shay under steam and the .22 caliber Gatling gun firing.

You'll examine tiny traction engines and puzzles that are part of the Sherline competition and the "Strictly IC" competition. You'll see a three dimensional mechanical trig computer, cannons, a rabbit plane the size of your thumb, an operational Stanley Steamer model, a working model LeBlond lathe, a radio control tank running up and down the aisles, a Garratt and an American locomotive, sawmills, walking dredge, donkey winch engines, and much more.

There is NO way I can get pictures off the TV screen and onto the page here. I can't capture the detail, the color, the motion and the sound. You have to see the tape.

At this meet you'll be amazed at the workmanship involved. You'll wonder what drove the builder to devote so much time to a single project. And then you'll cry when you realize that it can be done, but you haven't done it. ...yet.

The NAMES convention is an exhibition you should see. If you can't be there in person, Bob Bailey will take you there. If you like to build things, you'll watch this tape many times. Impressive. Get a copy. about an hour VHS NTSC only No. 1404 \$24.95



Fix Engines!

SMALL ENGINE REPAIR 2-12 HP

by Chilton Book Company

Here ya go. A Chilton Manual for the most common small engines: Clinton, Briggs & Stratton, Tecumseh, Wisconsin, Wisconsin-Robin. If you spent as much time in your teen years as I did under cars, then you know all too well what Chilton repair manuals offer. How-to. Nuts and bolts. Details. A teenage grease monkey's bible. Only here it's lawnmowers, garden tractors, and machines that are not nearly as fast and exciting.

These books are heavily illustrated wall-to-wall repair details compiled from the manu-facturer's own repair manuals. Good stuff. No doubt about it.

You bought a used garden tractor? Then get a manual for the engine so when it blows up you'll know how to fix it. Don't wait until it's in pieces. You're supposed to buy insurance BEFORE you need it. And here it is. Good stuff. Good price. Worth twice the price when you need the info. Get one. 6 1/2 x 10 softcover 561 pages No. 1410 \$19.95

Small Engines

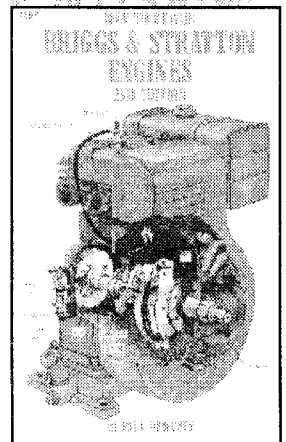
HOW TO REPAIR BRIGGS & STRATTON ENGINES

2ND ED
by Paul Dempsey

With this book and some scrounging you can recycle old Briggs & Stratton engines. Or you can keep your lawnmower going just one more year. Or build an emergency power plant. Or...

Chapters include: basics, ignition, carburetors, governors, starters, charging systems, and total rebuilding. This book is loaded with practical how-to: adjustments, troubleshooting, assembly diagrams, charts, hints and tips and all the rest.

B&S engines are common. It seems that you should be able to pick up junkers and combine the parts to get running engines at little cost. Good basic repair book. Get a copy. 5 1/2 x 8 1/2 softcover 190 pages No. 1265 \$13.95



SIX VOLT "BUZZ BOX" SPARK COIL

Nutha project from Dave Gingery

Here's another simple project from Dave Gingery...

The photo may look like a Model T Ford ignition coil but it is actually a home-built version, using readily available modern materials. Just what you need for that antique gas engine you are restoring or the model hit 'n' miss engine you are building.

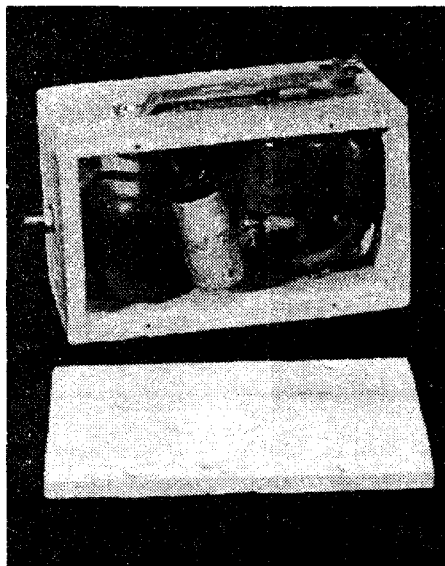
Jim Lewis, of Atkinson Engine fame, showed me how to make them using a discarded magneto coil from a small lawn mower engine. You may already know that such a coil works very nicely with six volt battery power if you are content with modern make/break-coil/condenser ignition. But had it occurred to you that the magnetic field of the iron core could be used to operate a simple vibrator to deliver a continuous spark? That's what Jim did. I've made some, too, and they work as well as those antiques that are so hard to find these days.

The first hurdle for me was the neatly "finger-jointed" wooden box. But Jim made that easy. Just use a 1/4" end mill in the vertical milling machine. You move the work 1/2" (.500") after each pass and the result is alternate fingers and slots of equal size. I used common pine that I resawed to 1/4" thickness. Assembled with white glue. The bottom was held with glue and small brads, and the top with #4 X 1/2" flat head wood screws so that it can be opened.

No dimensions are offered because there are so many shapes and sizes of magneto coils. The only consideration is that the box be large enough to contain the coil and condenser. And you must devise a way to extend the iron core through the box wall so that it can be used to operate the vibrator.

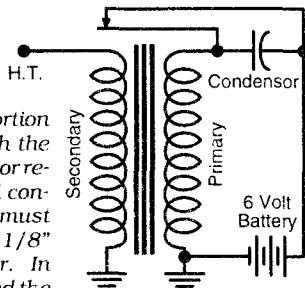
In most instances the iron core of the magneto coil can be reduced in size. Only the portion of the core that passes through the coil is vital so you can cut away or re-shape any excess for practical convenience. A portion of the core must protrude through the box wall 1/8" or more to operate the vibrator. In one instance I drilled and tapped the core and used a 1/4" bolt through the box to mount it. The bolt head serves to deliver the magnetic force to the vibrating arm. In another instance I epoxy-glued an iron plug into a hole in the box and mounted the coil with a bracket so that its core end rested against the plug.

Once the coil is mounted in the box with its core protruding you can fashion the stationary and vibrating points. I used a narrow strip of 30 gauge sheet metal cut from stove pipe for the moving arm. And I re-shaped a discarded point from a B&S engine for the stationary point. I salvaged the point from a discarded set of auto ignition points and riveted it into my vibrating arm. Then I assembled the elements over the protruding core and wired this simple vibrating switch in series with the battery and coil. The moment the coil is energized the magnetic core pulls



the points open to interrupt the circuit. That stops current so the points close again. The rapidly vibrating switch provides the alternating current that enables the transformer to multiply the six volts to the many thousand volts of the continuous spark.

The condenser is the standard type used in autos and engines. Refer to the wiring diagram for the circuitry. It is wired "across" or in "Parallel" with the vibrating points. Either of the battery terminals can be grounded to the engine. And the spark is delivered to the spark plug through the H.T. (High Tension) terminal.



If it is desired to operate on 12 volts a resistor equal to the D.C. resistance of the coil primary can be wired in series with the coil and battery. Such resistors are sold by auto supply stores for converting six volt accessories to 12 volt use.

Don't write Dave expecting him to correspond with you. He won't. He's too busy having fun. Last I heard he had accidentally locked himself in a broom closet and was giggling like a mad man...

Gimme a Break!

I'm here to tell you this ain't no gigantic company. Just a few of us trying to keep up with orders, pay the bills, and hold onto our sanity. We're not perfect. We screw things up. If we mess something up on your order, get back to us so we can set it straight. But don't be too hard on us. We're very sensitive. Almost every night I go home crying. (Actually we do an amazingly good job, we're told...)

Lindsay

MODEL MAKING

by Raymond F Yates

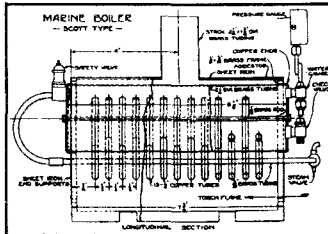
reprinted by Lindsay Publications

"A practical treatise for the amateur and professional mechanic - giving instructions on the various processes and operation involved in modelmaking and the actual construction of numerous models, including steam engines, speedboats, guns, locomotives, cranes, etc. Lathe work, pattern work, electroplating, soft and hard soldering, grinding, drilling, etc., are also included."

Sounds

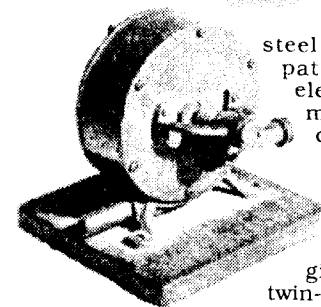
like a great book doesn't it? Actually the claims are a little inflated because the author tries to cover too much. Each topic could be a book in itself. Still, it is fascinating, and guaranteed to fill your head with ideas.

Chapters include: workshop, lathe work, drilling, soldering, hardening and tempering



MODEL MAKING!

Over 400 Pages of Great Ideas! Fun Book!

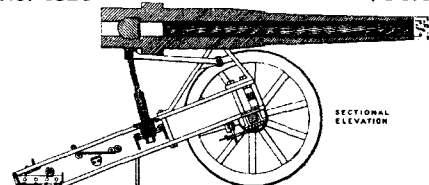


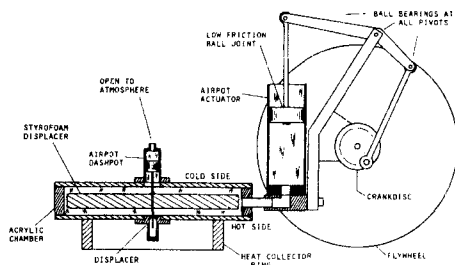
steel, abrasives, patternmaking, electroplating, model slide crank steam engine, model twin-cylinder engine, single-cylinder engines, model twin-cylinder marine engine, flash steam

plants, flash steam plant for model airplanes, model steam turbine, model boilers, boiler fittings, model hydroplane, lake freighter, gasoline engine, model steam locomotive tank, siege gun, steam yacht, 34" monoplane and much more!

Some of these projects need castings which are not available. But with all the dimensions and photos given, you should be able to modify and improve the designs. This is great raw material for the model builder.

So if you have a small lathe and want to build something in the worst way, or you just collect plans, or you just want a great book for a rainy afternoon, grab this gem from 1925. Loaded with great illustrations and great ideas. Don't pass it up. Order a copy today! 5 1/2 x 8 1/2 paperback 430 pages No. 4325 \$14.95





Low-Temp Stirling Engines!

LOW TEMPERATURE DIFFERENTIAL STIRLING ENGINES

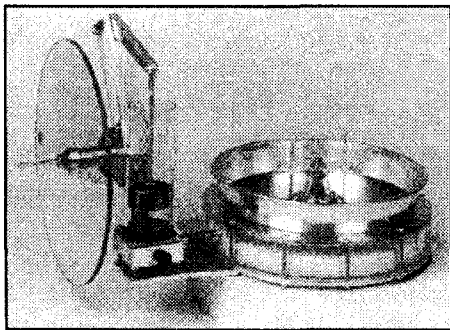
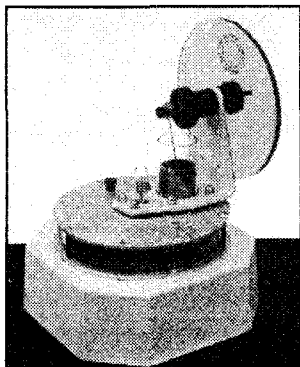
by James R Senft

A new low delta T engine book! Engineers us the Greek letter delta, D, to mean "difference." A low delta T is short hand to mean a small difference in T, or temperature. These are engines designed to run on low-grade heat. In fact some of these engines will run on the heat given off by your hand, your television or your favorite political candidate.

The author writes, "Much of my recent university research has been in this area.

and this book tells the story of the origin, development, theory, and operation of these engines in terms anyone can understand. The book also covers the construction of these engines including complete plans and instructions for building a model engine which will run truly effortlessly when held in your warm hand."

This is another book from Doc Senft, the guru of Stirling engines. Another must have



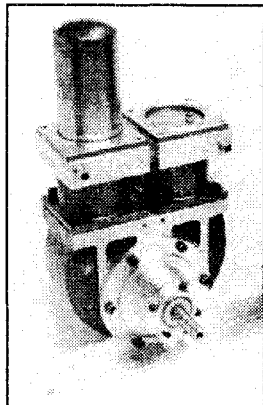
book for the engine nut. (So get out your check book...) Here's your chance to build an engine that will amaze your engine-ignorant neighbors and relatives. Tell them it's magic or perpetual machine. They won't have a clue. They'll think you're a genius. (And I sure won't tell 'em otherwise, now will I?) Get a copy! 5 1/2 x 8 softcover 88 pages No. 1408 \$12.95

Making Stirling ENGINES

MAKING STIRLING ENGINES

by Andy Ross

As you know, a Stirling engine is an external combustion engine that uses air instead of steam to transfer heat energy.



Stirling, a Scot, invented this engine in 1816. It's quiet, essentially non-polluting, starts easily, and in general is quite a remarkable engine. Most interesting (at least to me) is the fact that this engine can turn low grade heat into mechanical motion. Engines

have been built that have been powered by no more than heat of a man's hand, or conversely, by the lack of heat from a glass of ice water.

Andy Ross's book is a great text that Stirling engine buffs will tell you is a "must have." You get an introduction to the engine, a brief history, how it works, Andy's beginnings in engine construction, and more. Headings from the book include: other rhomics, the yoke drive, diversions, renaissance of the yoke drive, model airplane fever, the D-90 engine, and complete specs on six of his engines.

You'll see photos of the incredibly beautiful engines he has built: the 300cc DOE rhombic, the 15cc alpha with yoke drive, 35cc yoke Rider engine, the V-15 engine, the C-60, the V-90, the D-90 driving a mountain bicycle, the D-90 test rig for use as an outboard motor and others.

What you get here is a lengthy report revealing the experiments of an expert machinist and engineer. You get text loaded with technical details, and many, many views of his engines. You DO NOT get detailed step-by-step how-to instructions. This book is not for beginning metal workers, but it IS something any metal worker can aspire to.

This book appeared in 1993 and is already a classic among engine builders. It's not a big book, but it's top quality and definitely worth having! Get one. 8 1/2 x 11 with plastic spiral binding, 60 pages heavily illustrated

No. 1373

\$14.95

Introduction to Stirling Engines

AN INTRODUCTION TO STIRLING ENGINES

by James R. Senft

The author spent years as a college professor researching the Stirling engine. He has written dozens of technical articles and a couple of technical books. He told me, "I wrote this little volume to make the basic facts of Stirling engine understandable to anyone who can read. The book explains in clear terms exactly how the Stirling engine works."

And it sure does.

You get a very simple but accurate explanation of how the engine works, why it works, and simplified theory surrounding its operation. If you think you're going to design and

build, or simply modify, a Stirling engine without knowing what's in this book, I think you're a little daffy. A little theory goes a long, long way toward improving chances for success. This book isn't the only book that explains the theory. But I think the contents of this book are the minimum knowledge you need.

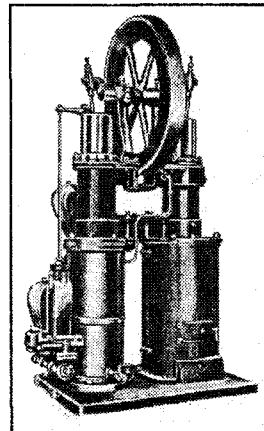
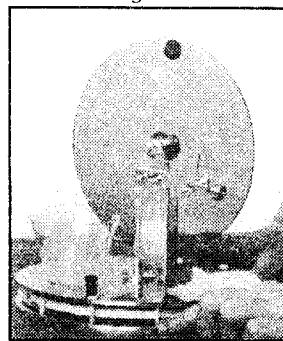
You'll learn about heat engines, heat engines and laws of thermodynamics, efficiency and the second law, the displacer, the Stirling thermodynamic cycle, a complete Stirling engine, other engine mechanisms, heat losses, the regenerator, the single-cylinder configuration, the ideal Stirling cycle, two-piston Stirling engines, pressurization, modern development, and a bibliography.

You get lots of old engravings of engines (many are to be found in Lindsay books), but you also get to see amazing new engines, the L-27 Ringbom solar engine, the P-19 Stirling engine that runs on the warmth of a human hand, engines that pump water, run automobiles, and more.

It's small, compact, loaded with ideas. Most important, this will explain how a Stirling engine works. Here's the truth from someone who knows and can explain it in an easy-to-read style. No more swiss-cheese knowledge. No more BS. No more half-truths. Here's the scoop.

Small book. Great info. Well written. Great ideas for engines, and other engine sources. 1993. Get a copy. 5 1/2 x 8 softcover 80 pages No. 1374

\$11.95



Build Dave Gingery's Two Cylinder Stirling Engine

BUILD A TWO CYLINDER STIRLING CYCLE ENGINE

by Dave Gingery

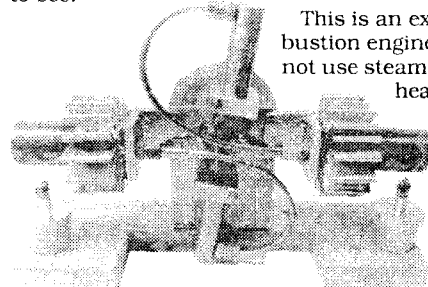
Dave Gingery's letters tell most of the story:

"Here are a couple of sketches of the new hot-air engine project... I've built a single cylinder engine of a similar design and it runs great. Practically no sound or vibration at about 1200 rpm... It is a great training project that should be appropriate for second and third year shop students..."

This is a free-style design with no practical application except as a demonstration engine. However, it is not a toy engine, and the builder will gain some valuable additions to his tooling as well as acquire new skills...

Aluminum castings are a major portion and the remainder is made of common water pipe, drill rod, brass rod and ordinary hardware, fittings and sheet metal. A small lathe fitted with faceplate, chucks and ordinary tooling will do the work. You will greatly expand your skill and you will end up with a mechanical marvel..."

Dave stopped by one time and fired up his prototype engine. From the outside ends of the opposing cylinders the engine is 11 1/2" long. When he fired up the alcohol burners, the engine sat there on my desk and silently started spinning. It was really something to see.



This is an external combustion engine but it does not use steam to carry the heat energy into the cylinders. Instead, it uses hot air. The engine was perfected by

Rev. Robert Stirling in the early 1800's. John Ericsson, the Swedish-born engineer contributed substantial improvements to the engine.

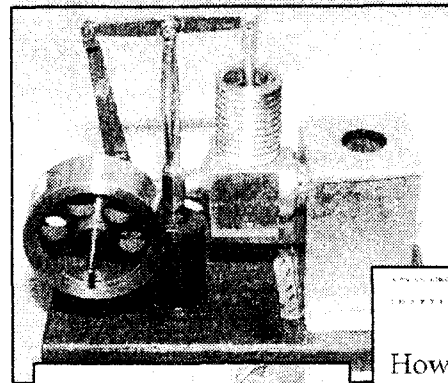
"I've killed a disgusting number of hours watching it run."

This is the usual full-tilt Dave Gingery manual with all necessary illustrations and step-by-step how-to that has made his name a famous one among machine shop enthusiasts. (Engines have been built without using castings.) You get history, theory, drawings, photos, the whole thing. Another Gingery book! A "must have!" Order a copy today! 8 1/2 x 11 softcover 76 pages

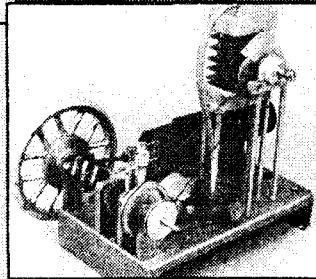
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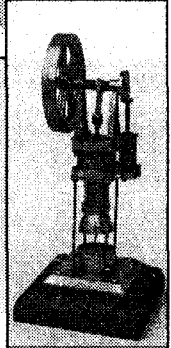
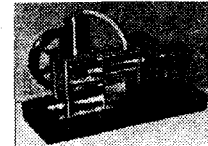
STIRLING ENGINE MANUAL!



How to construct "Mariner", a twin cylinder Stirling engine.



How to construct "Lolly", a V-type engine.



THE STIRLING ENGINE MANUAL

by James G. Rizzo

Wow! No other way to say it. Just plain, wow!

During my last visit to Camden Miniature Steam near Bath, England, I saw Andy and Adam working on this book. It looked really good then. But when I finally saw the final product, it far surpassed my expectations. If you have any interest in Stirling engines, and don't have this book, you deserve a rap on the knuckles (maybe with a two by four). This is good stuff.

Rizzo's book "Modelling Stirling and Hot Air Engines" appeared in England in 1985. This is a brand new, newly formatted updated version of his original title.

He says: "It is still a book for beginners to the hobby of building Stirling Engines..."

The first part of the book covers the history of the engine...

The second part... deals with projects well within the capabilities of the beginner or a home engineer with modest workshop facilities. This section covers a range of examples from small, uncomplicated but highly instructive and entertaining engines, to two types of Stirling engines not previously covered, a Low Temperature Differential Stirling Engine, and a Pressurised Stirling Engine...

[I believe] this is an engine that still has scope for further development; secondly that the home engineer has much to offer in its development... thirdly, this need not be an expensive hobby, since a fair amount of materials used can be obtained cheaply or from scrap yards..."

Many people contributed to the contents of this book including Andy Ross,

James Senft, Roy Darlington, Richard White, and a number of others.

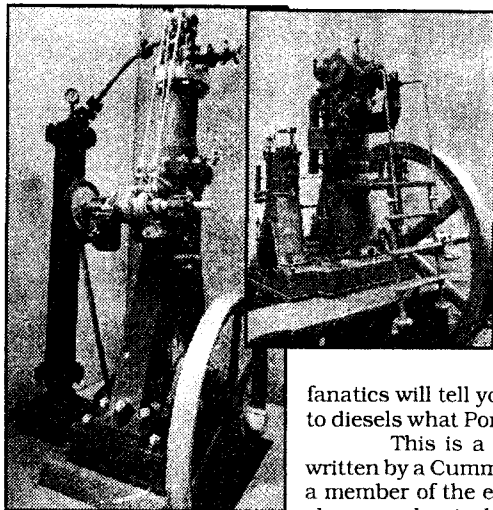
You get detailed text and great illustrations. You don't get dimensioned plans, but you do get photos, side elevation drawings, front elevations, tables of all important dimensions and specifications, and more. I've not seen more practical nuts-and-bolts hands-on how-to on Stirling engines in one place before. This beaut comes from England and because of exchange rates, prices are a bit high and can vary. But you get a beautiful hardcover book loaded with rare info. It's worth having. All I can say is Wow! 8 x 11 1/2 hardcover 183 pages wall-to-wall illustrations and four pages of color photos

No. 1375

\$35.95

CONTENTS

What is a Stirling Cycle engine? • How the "Closed Cycle" Hot Air Engine works • The Regenerator • Heating and Cooling • Pressurisation • Designing and Building model Stirling engines • Workshop Practice • Starting and Running an engine • Of Models and Modelling • How to Construct "Dolly" I • How to Construct "Dolly II" • How to Construct "DOP-YU", a double acting Stirling Engine • How to Construct "Lolly" • How to Construct "Lolly II", a V-type engine • How to Construct "Sturdy" • How to Construct "Mariner", a twin cylinder Stirling engine • The Ericsson Hot Air Pumping engines • How to Construct "Prova II", a competition type co-axial Stirling engine • How to Construct "Sunspot", a solar-powered Stirling engine • How to Construct "Dyna", a demonstration engine • Low Temperature Differential & Ringbom Stirling engines • How to Construct "Tuba" • How to Measure engine performance



fanatics will tell you that Cummins is to diesels what Porsche is sports cars. This is a book about diesels written by a Cummins. Not only is Lyle a member of the engine dynasty, he's also a mechanical engineer (holding a number of engine patents) and engine expert in his own right. And this is one great book.

DIESEL'S ENGINES

by Lyle Cummins

Some guys rob a bank (you almost have to) and go out and buy a brand new 18 wheeler. But because they demand the best, they have the stock engine ripped out, and a Cummins diesel bolted in. Many

Herr Diesel's Engines

Fascinating Illustrated History

"Diesel's Engine is the readable and comprehensive history of the man and the engine. It traces the life of an obsessed engineer and his contemporaries who brought the world's most efficient heat machine to the marketplace. Rudolf Diesel's ideas were often ahead of their time, and his engine endured failures and setbacks until new technologies were found. Only interim, imaginative solutions overcame the frustrating problems encountered.

... His engine created an international industry through the struggles of risk-taking licensees who turned it into a reliable, land-based powerplant. It soon went to sea as propulsion for commerce and underwater weapons of destruction.

... Above all, Diesel's Engine is about a troubled man who devoted

his life to a dream, yet at his zenith of fame lost control over its fate."

This is very readable, loaded with mechanical drawings, photos of people and especially

of all types of diesel engines in factories, ships, locomotives, and those nasty WWI German submarines. You get nitty-gritty detail about cylinders, displacements, bhp, numbers built and all that with much info coming from German archives. This history ends in 1918.

Expensive book! But really underpriced

once you see the material Lyle Cummins drops in your lap. It's big - almost 3" thick, and that makes it a pain for us to pack it and ship it to you. I don't like to work, so don't order it unless you really want it. But then I think you'd be a damned fool not to want it. Especially if you're an engine nut. (Guess that means I'll have to work...) Great book. Get one. 7 x 10 1/2 hardcover 746 pages

No. 1398

\$55.00

Modern Steam Engines

"Modern" 1887 Steam Engines!
Loaded with Beautiful Engravings!

MODERN STEAM ENGINES

by Joshua Rose, ME

reprinted by Lindsay Publications

The complete title is outrageously long:

"Modern Steam Engines: an elementary treatise upon the steam engine, written in plain language; for use in the workshop as well as in the drawing office. Giving full explanations of the construction of modern steam engines: including diagrams showing their actual operation; together with complete but simple explanations of the operations of various kinds of valves, valve motions, and link motions, etc., thereby enabling the ordinary engineer to clearly understand the principles involved in their construction and use and to plot out their movements upon the drawing board."

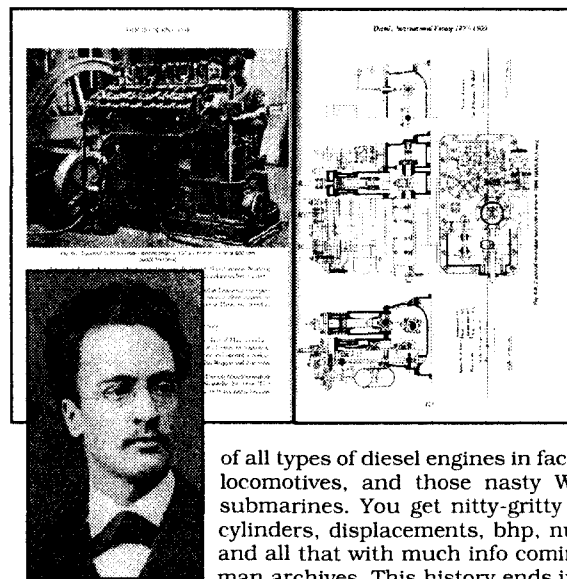
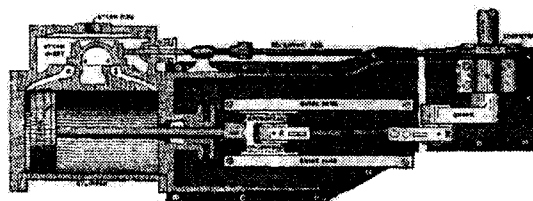
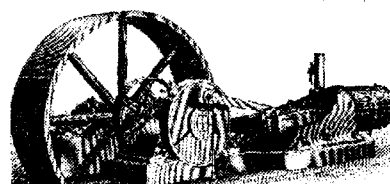
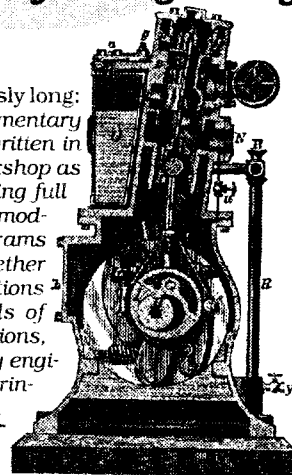
This large format book contains twelve untitled chapters that include such topics as cylinder ports, cushioning and its effect, the effect of rock-shaft upon the action of a common slide-valve, crankpin and piston movements, diagram of valve motion, when a slotted crosshead is used instead of a crank, Stephenson's link motion, the link in mid-gear: action of the parts, increase of lead due to moving the link from full gear towards mid-gear when a rockshaft is employed, the adjustable cutoff engine, Porter-Allen engine, uniformity of flywheel velocity, action of the auxiliary springs in the Buckeye Governor, construction of the Dexter governor, the Reynolds Corliss Engine, the dashpot of the Wheelock engine, Farcot's compound engine, the condensing engine, the Bulkley independent condensor, the vertical compound condensing engine, the marine engine, principles of construction of the Joy valve gear, the Frick traction engine, the rotary engine, the Ingersoll rock drill, the Worthington steam pump and much, much more.

Remember! Rose was a stellar engineer of his day, and this book was intended to teach the mysterious details about engines that you couldn't pick up on the job. About half the book is dedicated to valves, to their gear, and to adjustment. As you know, valve gears were the heart of engine operation, and Rose was out to teach engineers what he thought they should know.

Many of the "four hundred and twenty-two engravings" illustrated deal with valves and valve gear, but the rest will show you stationary, marine and traction engines in use in 1887, their internals and their auxiliary equipment. Beautiful engravings. Rare book! Back in print! Consider it. 8 1/2 x 11 softcover 322 pages

No. 21214

\$26.95



MODERN LOCOMOTIVE CONSTRUCTION

by J G A Meyer

Build yourself a locomotive! Meyer was an associate editor of *American Machinist* magazine, a member of the ASME, and chief draftsman for the Grant Locomotive Works. If any one could take you by the hand and show you how to design an 1892 locomotive from the ground up, he could.

You learn every aspect of design and construction with over a thousand illustrations, most of them being incredibly detailed working drawings. You get detailed how-to knowledge that can only be acquired from working in the industry.

For instance, Meyer discusses milling special grooves in order to remove pressure from the back of the slide valve. Into

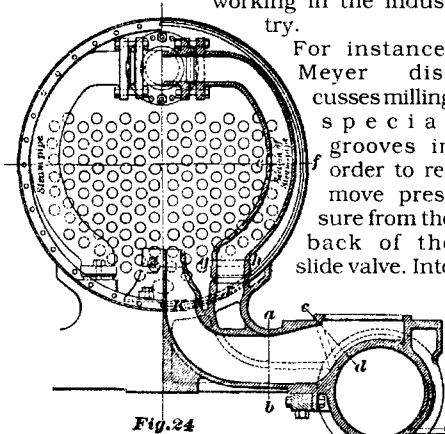


Fig. 24

the grooves are placed metal strips supported by springs. Meyer will tell you the master mechanics in the roundhouse disliked spiral springs because lubricating tallow would build up there. Elliptic springs solved the problem but lost their strength over time and created other unique problems.

You get that kind of detail and insider information throughout this big volume. Who on earth needs to know about the effect of lead counterbalance in the rim? ...or that bearing pressure can be significantly greater in the knuckle-joint pin as compared to a crank-pin? ...or why a sloping crown sheet is much safer when a locomotive is running down hill? You need to know these things and a thousand more if you restore locomotives,

Author's Goal

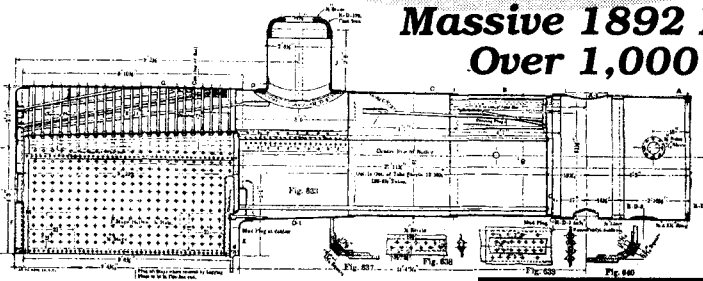
"The series of articles treating on Modern Locomotive Construction recently published in the *American Machinist*, which, by the request of its editor, I commenced while I was engaged as chief draftsman at the Grant Locomotive Works, Paterson, N.J. ...

The favorable recognition which these papers have received induced me to revise them thoroughly and add more than fifty per cent of new matter, with the necessary illustrations, which also had to be made expressly for the purpose, and to publish the whole in book form.

...The aim is to assist practical men ... who are about to enter the business of locomotive building..."

Modern Locomotive Construction

Massive 1892 Handbook!
Over 1,000 Drawings!



build models, study railroad history, or just want to impress the mourners at your mother-in-law's wake.

There is no way I can describe this book other than throw a few quotes at you and reproduce a few of the illustrations. The detail is mind boggling.

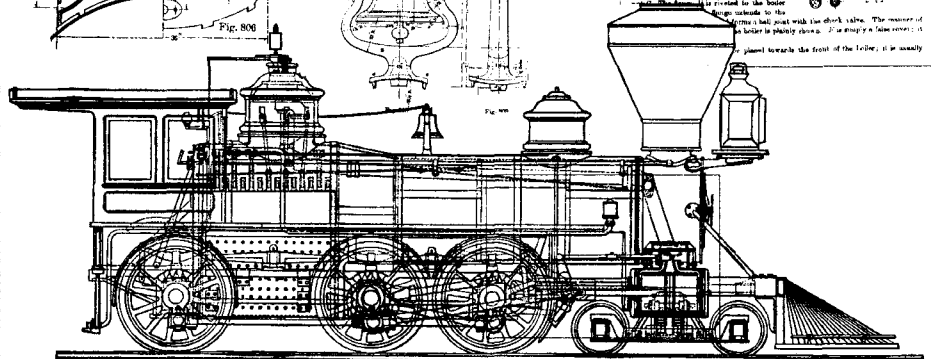
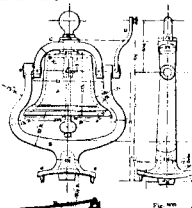
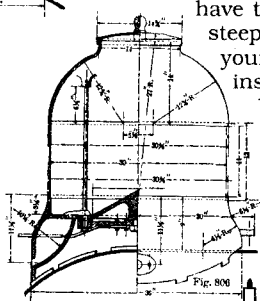
Let's suppose you're going to put a diamond-shaped smoke stack on your soft-coal-burning locomotive. Meyer shows you a diagram of a typical diamond stack. "...The cylindrical part D of the stack often consists of two shells, leaving an annular space about 5/8 inch wide between them. Sometimes four 1-inch holes are drilled through the outer shell just above the flange A, and another four

holes are drilled through the outer shell near the top, for the purpose of creating a circulation of air through the annular space. This arrangement prevents the outer shell from becoming overheated and blistering the paint..." and on and on he goes. Blister the paint?

I would be very proud to build an engine that would run well whether it were painted or not.

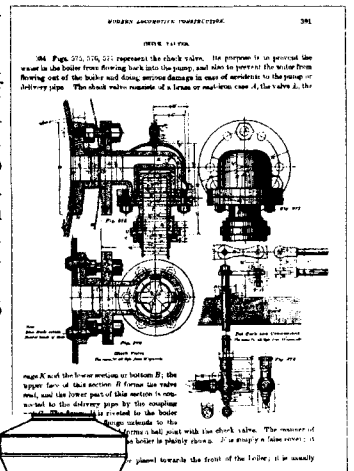
Meyer obviously was an expert. He knew what he was talking about. And he shares his expertise with us in this incredible volume. I took one look at this and knew it had to be reprinted for machinery and steam power fanatics. Reprinting this has been very expensive, hence the high price. But you get your money's worth and more. This is something very special for connoisseurs and collectors - a must-have. For the rest of us, it is a visual joy, an exploration of machinery from the glorious age of steam power. Full tilt! Get a copy of this. Put a second mortgage on your house if you have to. Seriously, if the price is too steep for you, consider putting it on your charge card and paying it off in installments. But do get a copy.

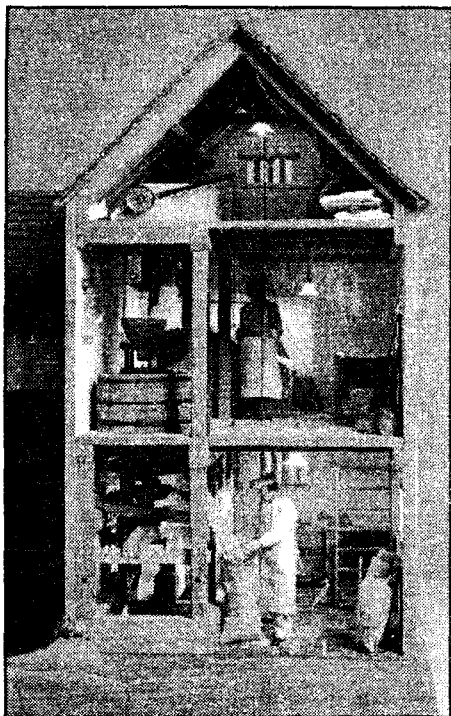
You'll like this. 8 1/2 x 11 hard-cover 685 pages
No. 21443 \$44.95



CONTENTS

- Classification of Locomotives - Trains Resistance - Tractive Power - Weights of Engines • Construction of Cylinders - Steam Pipes - Slide Valves • Valve Gear - Construction of Links - Pistons - Crossheads - Slides - Stuffing Boxes • Frames and Pedestals - Axle Boxes • Driving Axles - Driving Wheels - Counterbalance • Main-Rods - Side Rods - Crank-Pins • Throttle Pipes - Throttle Valve Gear - Safety Valves - Whistle - Pumps - Check Valves • Spring Gear and Springs • Boilers - Grate Surface - Heating Surface - Riveted Joints - Extension Fronts • Ash-Pans - Smoke-Stacks - Exhaust-Pipes • Sand-Boxes - Bells - Pilots - Engine Braces • Engine Trucks • Oil-cups - Valves - Cocks - Injector • Tenders - Tender Trucks • Useful Rules, Formulas, and Data • Compound Locomotives.

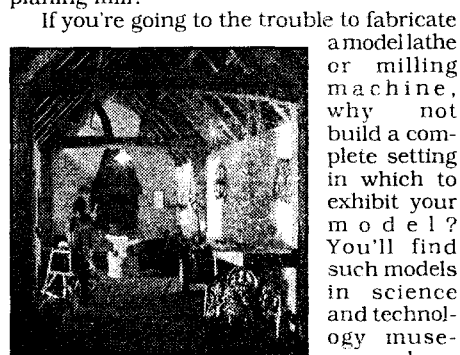




Build a Dollhouse for your model machines!

MAKING CHARACTER DOLLS' HOUSES
by Brian Nichols

It's time to get off your butt and build a doll house. What? A doll house? Of course! But the doll house I want you to build is not for dolls. I want you to use this book to build replicas of blacksmith shops and machine shops. Or how about an old water powered planing mill?



If you're going to the trouble to fabricate a model lathe or milling machine, why not build a complete setting in which to exhibit your model?

You'll find such models in science and technology museums here and in Europe. I've even seen these "doll houses" at the NAMES show in Wyandotte. This is a big book, British, and expensive. But it's filled with plans and full color photos. Chapters include cider barn, forge, Swann Inn, Georgian house, water mill, in the workshop, magazines & further information and more. All plans are 1" scale, that is, 1/12 actual size.

These are impressive models in wood. I can only imagine how eye popping they would be when you build them primarily from machined metal, fully functioning. These could be a crowd stopper at a future model exhibition. Build a "doll house". The time to get started is now. Get a copy. 9x12 hardcover 192 pages
No. 1407

\$29.95

Mechanisms!

**MAKING MECHANICAL
MARVELS IN WOOD**

by Raymond Levy

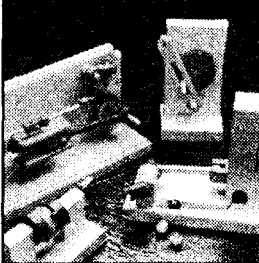
You get plans, instructions and illustrations to build a cam and follower, the eccentric, the Scotch yoke, the fast-return actuator, a self-conjugate cam, a stationary steam engine, a single-part mechanism, couplings, Watt's sun-and-planet motion, the Geneva wheel, and several others.

Each is a hard-wood demonstration of a basic mechanical movement that can be quite a conversation piece. But even if you don't work wood, use your head. How about making these devices from metal? How about making patterns and selling castings as kits? Or forget the metal, and make 'em out of epoxy and peanut butter. No? Well, you gotta better idea?

Fascinating book for anyone who likes machinery. Great ideas for metal workers. A "must-have" for model makers. Order a copy! 8x10 paperback 192 pages
Cat. no. 1306

\$14.95

Making Mechanical Marvels in Wood



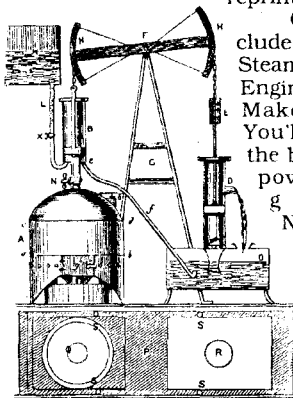
Steam Engine Projects

STEAM ENGINE PROJECTS

from the Young Mechanic 1871

reprinted by Lindsay Publications

The 1896 edition of the Young Mechanic contained mostly dull information in its 340 pages. At the back of the book, however, were interesting chapters on how to build simple but functioning steam engines and their boilers. Only those chapters have been reprinted here.



Chapters include: How to Make a Steam Engine, Watt's Engine, and How to Make an Engine. You'll learn about the basics of steam power, packing glands, Newcomen's engine, details of Watt's steam engine, and throughout details on building both the engine and boiler.

Certainly, this is not a sophisticated engine, but IT IS an engine that almost anyone should be able to build and operate. Even if you don't build the engine described, you will find useful ideas that you can apply to your own design.

It's great old information at a very reasonable price. Order a copy. 5 1/2 x 8 1/2 softcover 64 pages leatherette cover
No. 20234

\$4.95

CATECHISM OF THE STEAM ENGINE!

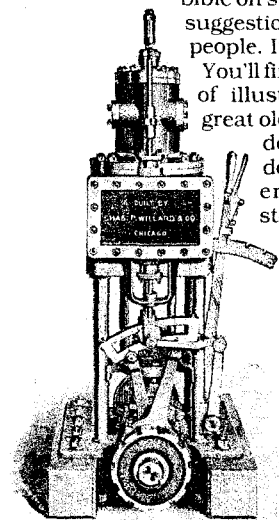
NEW CATECHISM OF THE STEAM ENGINE

by N. Hawkins, M.E.

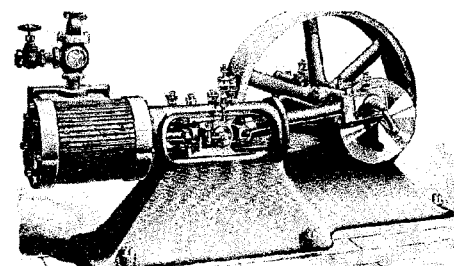
reprinted by Lindsay Publications Inc

I've reprinted this turn-of-the-century bible on steam power at the suggestion of a number of people. It's really great.

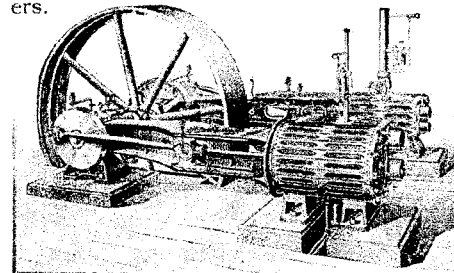
You'll find page after page of illustrations, usually great old engravings, and detailed technical description on every conceivable steam power device from Corliss, McIntosh & Seymour, and Porter-Allen engines, to Conover independent jet condensers, steam road rollers, Baldwin Locomotives, and steam fire engines. You'll



see everything from hoisting engines to air and refrigeration compressors.

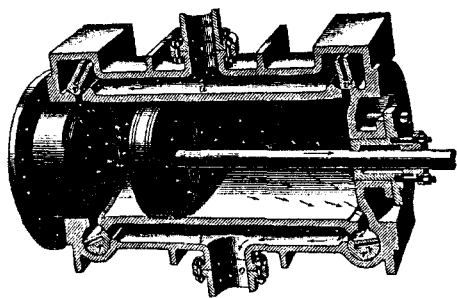


You even get chapters on gas, oil, and hot air engines. You'll see engravings and cut-away drawings of the Otto gas engine, the Simplex naphtha engine, the de LaMater-Ericsson hot-air pumping engine, and others.



Original copies of this 1904 master reference are not easy to find, but you can have your own personal copy for much less than the cost of an original. This is a "must have" book for any steam enthusiast. Wall to wall illustrations! You'll like it. Order a copy today. 5 1/2 x 8 1/2 softcover 437 pages
No. 4619

\$15.95



STEAM ENGINE DESIGN

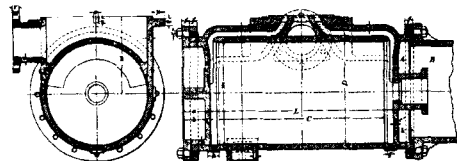
STEAM ENGINE DESIGN

reprinted by Lindsay Publications

You can build simple steam engines from castings or stock material, make them run, and have a lot of fun. But just because your engine runs does not mean that it is a quality engine. If you want something more than just an engine that runs, one that provides reliability, power AND efficiency, you need to learn how to design one from an 1896 engineer.

In the first section you'll learn the basics: all the components, how they fit together, and how they work. Then you'll learn about the choices and tradeoffs that must be made concerning expansion, valving, boiler pressure, piston speeds and more. Then you start plugging numbers into the formulas to come up with back pressure and point of exhaust closure for simple engines and engines with single swinging eccentrics.

Walk through calculations for simple, non-condensing engines, high speed automatic cutoff engines, hoisting and locomotive engines, and multiple-expansion engines.



Calculate in detail the proportions of the cylinders, steam ports and passages, dimensions of the steam chest, Corliss engine cylinder proportions, diameter of the drive shaft, size of the journals, crankpins crankshaft counterbalances, and on and on.

The last section will show you how to design crossheads for a variety of engines, eccentric rods, stuffing boxes, flywheels, sample proportions for existing successful engines and more. There's so much nitty-gritty detail here, that it will take you days and weeks to work the design out on your calculator, think about it, revise it, and build it.

Don't expect to become an expert engine designer just by reading this book. But you will learn secrets and techniques that haven't been taught in almost a century. This is a great book on an unusual subject! A MUST book for steam buffs, mechanics and historians. Reasonably priced. Order a copy.

5 1/2 x 8 1/2 softcover 192 pages

No. 4104

\$9.95

Laying Out for Boiler Makers!

Absolutely incredible book on boilers and complex sheet metal work!

LAYING OUT FOR BOILER MAKERS AND SHEET METAL WORKERS

by Aldrich Publishing Company

reprinted by

Lindsay Publications

The ladies who handle your orders thought this was a book about getting a sun tan.

Wrong! Not unless you like to lay around in a bikini in a boilermaking shop!

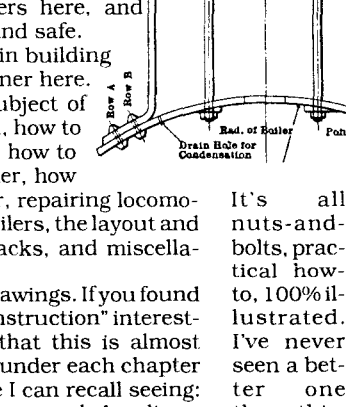
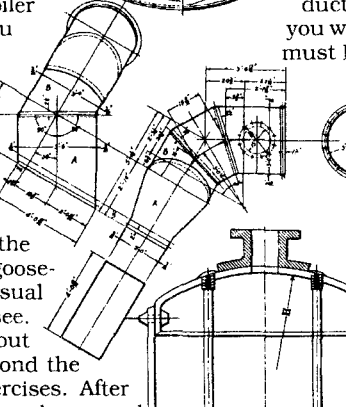
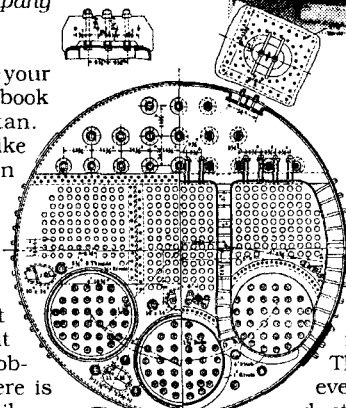
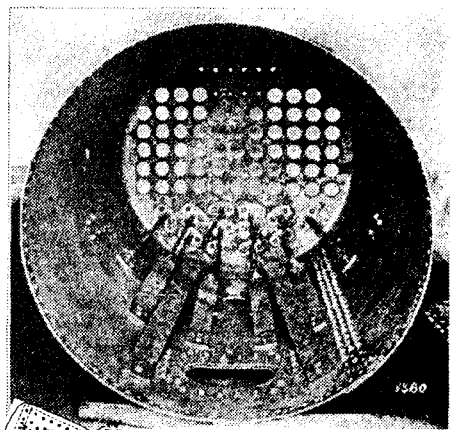
In a sense this is a 1918 book about taking a flat sheet of metal, drawing all kinds of fancy triangles on it, putting it in a brake and turning it into a three dimensional object. What's unusual here is that the sheet metal is boiler plate and the objects you end up with are steam boilers!

This is an incredible book. If you like to work sheet metal, this will show you the geometry you need to layout and fabricate some of the most unusual tapered, goose-neck adapters and unusual curved forms you'll ever see. This is an incredible layout book that goes well beyond the usual simple sheet exercises. After all, we're building boilers here, and they have to be strong and safe.

If you are interested in building boilers, you've got a winner here. Chapters include the subject of laying out, triangulation, how to lay out a tubular boiler, how to lay out a locomotive boiler, how to layout a Scotch boiler, repairing locomotive and other types of boilers, the layout and construction of steel stacks, and miscellaneous problems.

This is wall-to-wall drawings. If you found Meyer's "Locomotive Construction" interesting, I can assure you that this is almost identical. The headings under each chapter are unlike anything else I can recall seeing: holding quantities of flues, smokebox liner, firebox crown sheet, circumferential seams, backing out rivets and repairing cracked mudring, nest coil semi-flash boilers, a flue and return tubular boiler with drop leg furnaces, a lobster back boiler, layout of an arched smoke box, development of ogee corner, and on and on.

The last chapter on "miscellaneous prob-

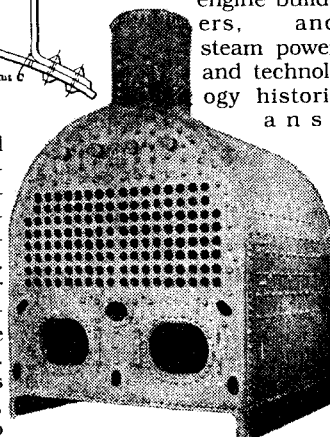


lems" makes up more than half the book! There are boilers that look like brew kettles. One boiler isn't a boiler at all. It's a complex intake elbow for an 18,000 hp water turbine! One pattern will you how to make a pouring lip for a foundry ladle.

First and foremost, this is a book on taking flat sheets of metal and converting them into three dimensional shapes. This is by far the best book I have ever seen on the topic. No HVAC ducts here... just unusual stuff. If you want to work sheet metal, this is a must have.

What also knocked my socks off is that you get details on building boilers! In particular, locomotive boilers. It almost makes me want to run out in the warehouse and start fabricating a giant locomotive boiler! Well, maybe not... You get detailed plans with all the flues, rivets, and bolts shown. You get formulas to calculate unknowns and ensure success. It's great.

This is a "must-have" for sheet metal workers, steam engine builders, and steam power and technology historians.



It's all nuts-and-bolts, practical how-to, 100% illustrated. I've never seen a better one than this. (If you miss out on this, I'm going to

have to ask you to have your cranium hydrotested!) Somewhat expensive, but you won't be disappointed. Get one! 8 1/2 x 11 cloth 416 pages

No. 21630

\$39.95

Power & Machinery from 1880!

Incredible Picture book of Machine Tools, Woodworking Machines, and More!

**POWER AND MACHINERY
EMPLOYED IN MANUFACTURES**
by U.S. Dept Interior, Census Office
reprinted by Lindsay Publications Inc

Although our tenth census was held in 1880, it wasn't until 1888 that this wall-to-wall picture book of incredible wood engravings finally came of the press. Over ten years ago, we reprinted a small section of this volume and entitled it "The Machine Tools of 1885". If you have seen that book or know of it, you know what this is all about.

The general table of contents includes General Letter of Transmittal; Statistics of Steam and Water Power Used in the Manufacturing of Iron and Steel; Machine Tools and Wood-Working Machinery; Wool and Silk Machinery; Pumps and Pumping Engines; Manufacture of Engines and Boilers; Marine Engines and Steam Vessels; and Report on the Ice Industry of the

art and throws 32 engravings at you to prove its points. You'll see traveling cranes, a pneumatic riveter, Colt's armory engines, an Atlas slide-valve engine, a Corliss engine with a wrought iron frame, a Ball engine, and on and on.

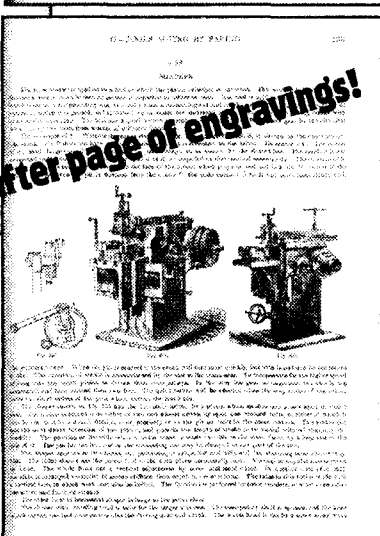
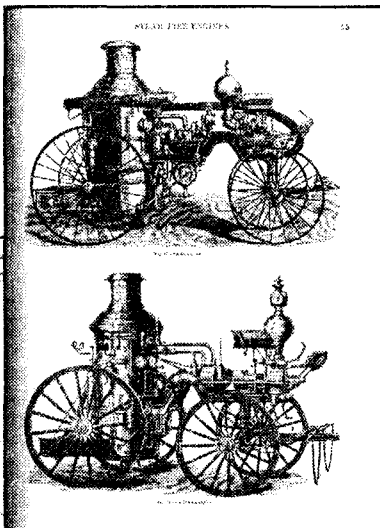
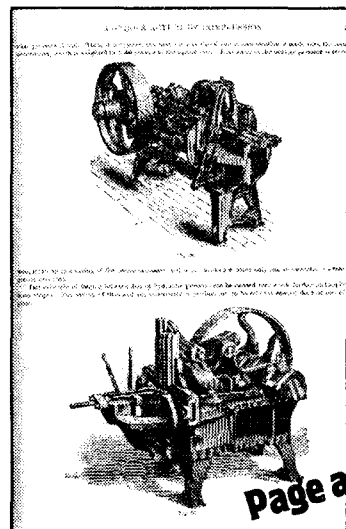
Next, the steam boat section discusses all kinds of things including engines of New England steamers, engines and boilers of the "City of Augusta", flue-boilers, boilers of Gulf steamers, side-wheel steamers, compound engines of an ocean steamer, engines

of Mississippi river steamers, and more. Thirty eight engravings will show you the engines of the "Louisiana", "Hudson", "Susquehanna", "City of San Francisco" and more.

Finally, explore the ice industry back when mechanical refrigeration was being introduced. You get great engravings showing the tools and techniques of cutting winter ice and storing it for summer use in insulated ice houses. You get page after page of statistics on the number of tons of ice sold, the number and tonnage of steam boats operating in a given state, the number of machine shops building steam engines and more.

Seeing all these engravings together in one giant volume provides a sweeping picture of American industry more than a century ago.

Great book. I've had it for years. I'm just now getting around to printing the whole thing. This is a must-have for the antique machinery nut, historian, restorer, collector and builder. The price is high (at least for Lindsay books), but it is really quite a bargain. Other publishers would ask a lot more. It doesn't get any better than this. Order a copy. 8 1/2 x 11 hardcover with extra thick boards reinforced end-sheets about 672 pages
No. 21532 \$49.95



page after page of engravings!

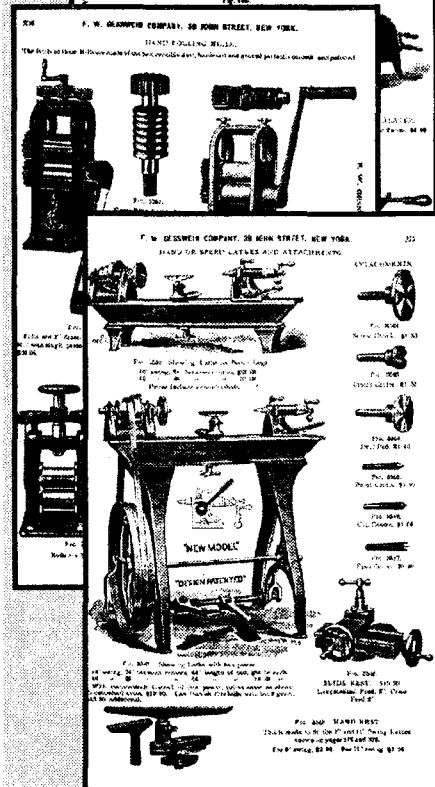
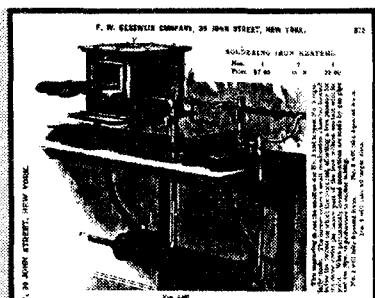
United States.

The first chapter on power for iron and steel has no illustrations. But the next section on machine tools and wood-working machines has 570 engravings covering everything from a sash and door groover head and molding machines to 10 foot plate bender and 84 inch lathe. It's like walking through the most modern metal and/or wood-working shop of the 1880's.

You get page after page of fascinating pumps, many of which look like the one-lung engines that would follow in just a few years. Ten pages of incredible fire engines follow.

You'll find about thirty great engravings revealing the silk and wool industry. You can explore carding machines, a forty-harness loom, a Davis & Furber wet gig, and much more.

The report on the manufacture of engines and boilers talks about 1880 state-of-the-



1899 Gesswein Tool Catalog!

1899 TOOLS AND SUPPLIES CATALOG
F W Gesswein and Company
reprinted by Lindsay Publications

This is one of the really great old time tool catalogs, one that offers everything from polishing wheels and India oil stones to hand rolling mills, laboratory balances, and crucible furnaces.

You get a 500 page catalog heavily illustrated with beautiful engravings. You'll find the usual metalworking tools such as files, milling cutters, calipers, anvils, vises and the like, but there are some things you just won't find in a hardware store today such as a Smee Battery with carbon plates or a polished iron mortar.

This is a gem of a catalog. Just take a look! I've enlarged the 4 1/2 x 7" original slightly in the reprinting process to make the small type easier to read and to maintain the quality of the engravings. It's good. If you're a tool fanatic or just like old picture books, get a copy of this. You'll like it.

5 1/2 x 8 1/2 sewn pages with leatherette cover 504 pages
No. 21354 \$19.95

Accuracy for Seventy Years



Mr. Pratt Mr. Whitney

ACCURACY FOR SEVENTY YEARS

by Pratt & Whitney

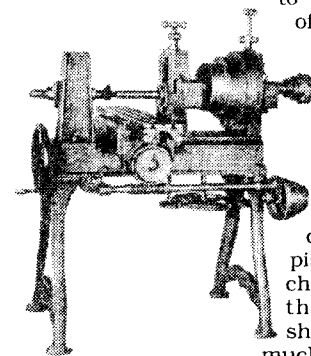
reprinted by Lindsay Publications

In 1860 Francis Pratt and Amos Whitney worked in the Phoenix Iron Works during the day, but at night formed a company to build machinery. By 1930 the small company they founded had grown into a giant corporation known throughout the world for its sewing machines, typewriters, machine guns, grinders, lathes, milling machines, packaging machines, and on and on.

To celebrate their 70th anniversary the company published this small pictorial history of their company. Although in many ways this is just slick advertising of the era, you'll find that it's a fun way to go back and see the original workers, their factory, the early machines they produced as well as the factory and their products as it appeared in 1930.

Although you get early history, most of the book is composed of photographs. And yes, the big wheels of 1930, just HAD to see their ugly mugshots in the book as well. They may upset your stomach but the machinist instinct in you will appreciate the 1865 die sinker, the 1876 reciprocating hydraulic engine, the P&W interferometer that measured

to the millionths of an inch, the bicycle wheel rim spoke drilling machine, the cigarette packaging machine, the Gardner machine gun, the pistol rifling machine, as well as the machine shops, foundry & much more.



You'll discover this a fun book to page through and imagine that you were there when the company was new. Fascinating book. Get a copy. I think you'll like it! 6x9 softcover 118 pages

No. 20870

\$9.95

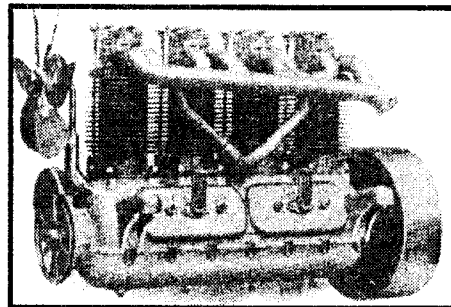
Ancient Autos

AUTOMOBILES 1906

by American School of Correspondence
reprinted by Lindsay Publications

This is a well-illustrated, fun-to-read book about early autos from a five hp 1906 Runabout to steam autos.

You'll see photos and drawings of early four-cylinder air-cooled engines, flimsy unbalanced crankshafts with enormous flywheels, a gasoline engine with revolving cylinders, unusual carburetors, Frayer-Miller engine parts, planetary gear transmissions, variable speed friction drives, chain drive systems, steering wheel and steering lever systems, brakes, tires, spark coil and magneto ignition systems, bodies, the Marmon V-4 air cooled engine, shock absorbers, and more.



The photographs in this early book are somewhat gray and "muddy" (photo technology was new, too). You get an inside look at very early autos when autos were still practically experimental. Fun to read! Reasonably priced. Order a copy! 5 1/2 x 8 1/2 softcover 88 pages

No. 20307

\$5.95

60 YEARS WITH MEN AND MACHINES

by Fred H. Colvin

reprinted by Lindsay Publications

"Mr. Machine Shop" was 79 when he wrote this, his final book. He figured by that time in 1947 he had written over 7 million words for publication both in *American Machinist* magazine and in his own books. Colvin started his machine shop apprenticeship in July 1883 and ended up as editor of *American Machinist* magazine.

FRED COLVIN REMEMBERS

Chapters include The Machine That Can Reproduce Itself, In the Beginning Was the Belt Drive, Giving the Machine a Voice, A Society Sponsors the Machine, High-wheelers and High Iron, Natural History of the Automobile, I Join the American Machinist, From Maxim to the Jet Plane, Machine Tools and the First World War, Tour of the World in Eighty Days, Machine Tools and Global Warfare, and finally, Past, Present and Future.

You'll find this volume to be filled with personal memories of famous men and incredible machines and how they created the world we know today — from the Columbian Exposition of 1893 to the jet fighters of World War II. You'll find photos of Starrett, Hartness, and other greats, locomotives, machine tools, the Wright brother's engine, the Maxim machine gun and much, much more.

This is like sitting on your great grandfather's knee and listening to his old machine shop stories. It's fun reading. Another one of many books worth having. You'll read it and reread it. Get a copy.

5 1/2 x 8 1/2 softcover 297 pages

No. 4864

\$14.95



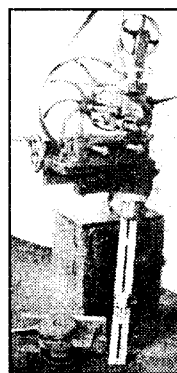
Fred Colvin

ENGLISH & AMERICAN TOOL BUILDERS

by Joseph Wickham Roe
reprinted by Lindsay Publications Inc

Do you really know who Mr. Pratt and Mr. Whitney were? Or Mr. Brown and Mr. Sharpe? Or Colt, Maudslay, or Whitworth? The answers are here.

Meet the men who invented and perfected machine tools. You'll read about and see French lathes from the 1770's, Wilkinson's boring machine, Samuel Bentham, Brunel and his shaper, Maudslay and his screw cutting machine. Discover a French screw cutting lathe from the 1500's!



MACHINE TOOL INVENTORS!

Also covered are fascinating details of the careers and the inventions of Joseph Whitworth, Eli Whitney, Blanchard and his gun stocking lathe, Samuel Colt and his armory, Root's chucking lathe, Francis Pratt, Amos Whitney, Frederick Howe, James Hartness, and others.

If you're just a dummy who just wants to beat a piece of metal with a hammer, then skip this. But if you consider yourself a knowledgeable machinist, you should at least know who these people are. After all, they invented the tools you use. Any machinist who takes pride in his knowledge and skill will want to read this fascinating 1916 classic.

Meet some of the most talented machinists who ever lived. Great reading. Entertaining. Get a copy. Top recommendation!

5 1/2 x 8 1/2 softcover 416 pages

No. 4732

\$17.95



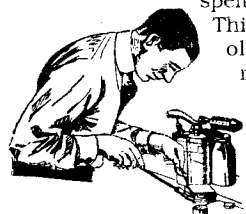
SOLDERING & BRAZING

SOLDERING AND BRAZING

by Raymond Francis Yates
reprinted by Lindsay Publications

"... Includes a Multitude of Soldering Kinks, Gives Design and Construction of Electric Soldering Coppers and Heating Devices. A Practical Hand-book for Everyone Interested in the Process of Soldering and Brazing"

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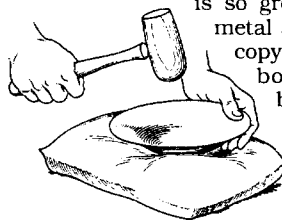
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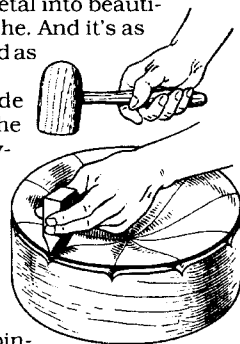
by Osburn and Wilber

I keep bringing this book back because it is so great. If you work metal and don't have a copy, I think you're a bonehead. That's because it may be about pewter, but it teaches the reader about all types of metalworking



from making sand molds and casting molten metal to spinning metal into beautiful shapes on the lathe. And it's as beautifully illustrated as any book I've seen.

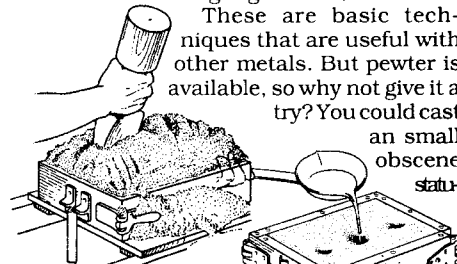
Chapters include the story of pewter, the metal, designing pewter ware, layout and forming, soldering, plaster casting, beating down and planishing, raising, decorative processes, casting spinning low forms, spin-



ning high forms, and more.

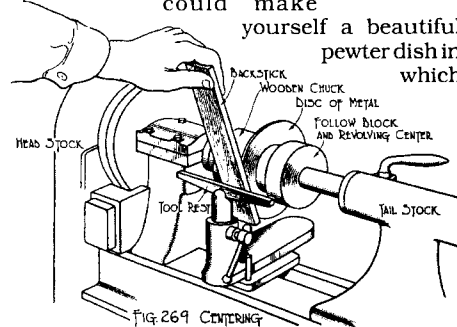
These are basic techniques that are useful with other metals. But pewter is available, so why not give it a try? You could cast

an small obscene statu-



ette and shock your mother-in-law with it as a Christmas gift. Or you could make

yourself a beautiful pewter dish in which



to keep jellybeans, snuff or Preparation-H. Your choice.

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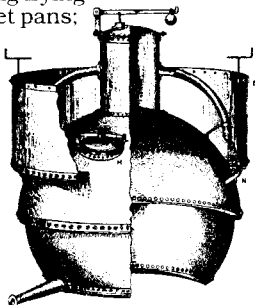
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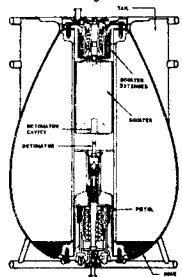
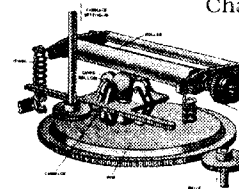
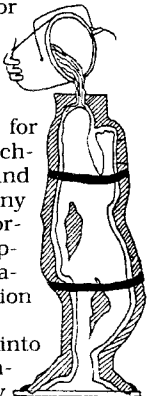
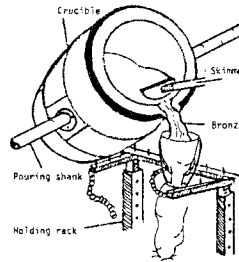


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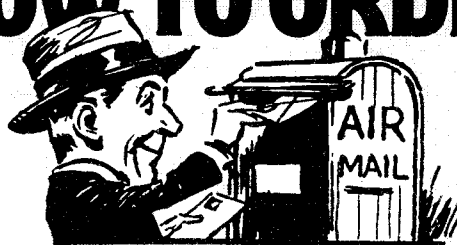
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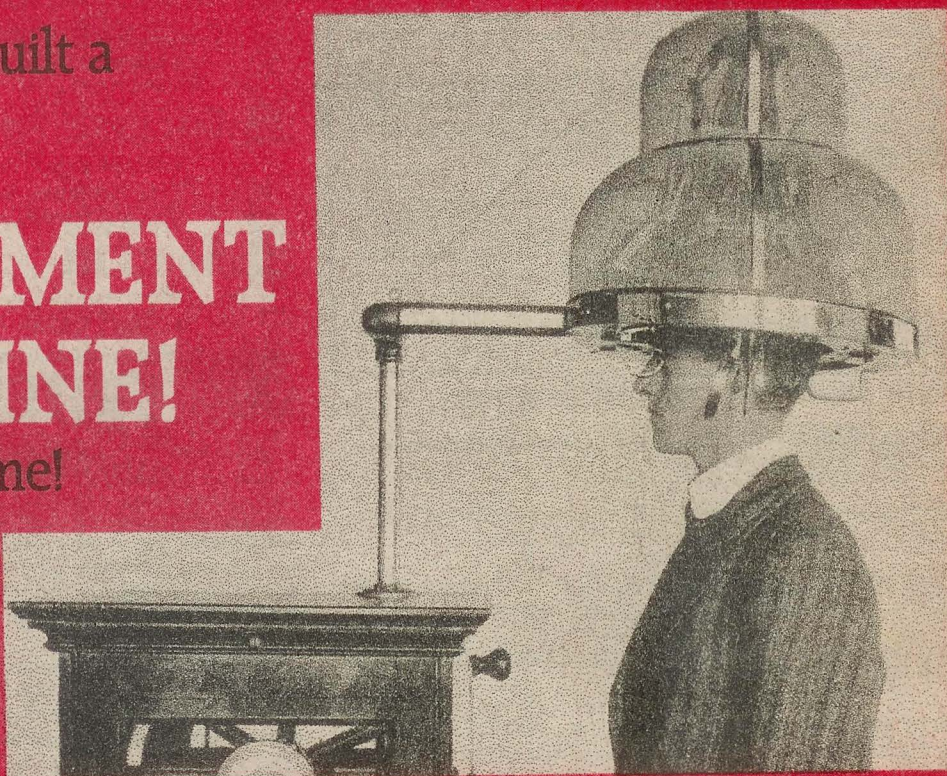
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Lindsay could never understand why the steering wheel in his rusted out pickup truck was turned to one side and why he had to fight the wheel to keep the truck traveling straight down the road. Then someone suggested he get the front end aligned. Lindsay was so impressed with the improvement he ran out into his shop and built a device to align the human (and sub-human) brain.

He reasoned that people were bizarre because they had hit too many mental pot holes traveling down the road of life. Their cerebral front end was all bent out of shape. So he built a machine to get their cranial caster and camber back where it should be.

Before he could test it on one of us, we snuck up on him, clamped it on *his* head and turned it on.



What we didn't know was that he had built the machine for 110 volts, and we had plugged it into 220! To make a long story short it seems to have worked. He seems to be a little more toward the center of the road (anything is an improvement) although his eyes now point in different directions, one ear is lower than the other, and his bald spot is scorched... just minor details...

Please buy books so we can get the machine shipped to Washington DC where it is really needed.

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